8 top Lionel sets from the 1960s p.65

CLASSIC TOY TRAINS

O and S gauge for the operator and collector

WEEKEND WORKSHOP: Tips for MTH signals p.70

From bare walls to bold scenery in 8 easy steps p.40

Two levels of O gauge action in a spare room p.xx

Wiring and scenery for a 1950s-style layout p.xx

Block control wiring: A fresh look p.xx

USA TRAINS

Die-Cast Metal GG1 Electric Prestige Series Locomotive

GG1 Locomotive Features: • 1:20 Scale • Diesel Fireman mounted

• Operating motorized pantographs with mechanical power pick-up • Operating steam exhaust

• Highly detailed die-cast metal construction • Operating directional headlight and cab lights

• Operating directional number lights • Working drop coupler • Metal handrails

• Separately cast metal detail parts • Die-cast metal truck side frames • Articulated chassis

• Detailed cab interior with engineer figures • Authentic GG1 sound system

• DCC Installed • Overall length of GG1 Locomotive is 33 1/2"

GG1 ELECTRIC LOCOMOTIVE WITH SMOKE

#20-8808 Pennsy - Green w/1-Gold Stripe

#20-8809 Pennsy - Tuscan w/1-Gold Stripe

#20-8810 Pennsy - Green w/1-White Stripe

#20-8811 Pennsy - Tuscan w/1-White Stripe

#20-8812 Pennsy - Green w/Single Stripe

#20-8813 Pennsy - Tuscan w/Single Stripe

#20-8814 Pennsy - Silver w/Single Stripe

#20-8815 Undecorated - Blue

#20-8816 Undecorated - Silver/Blue/Red

#20-8817 Undecorated - Black

Articulated Chassis

Working Smoke Stack Coupler

Motorized Pantographs

Opening Cab Door

Engineer in Cab

©XX

USA TRAINS • P.O. Box 190 • Keyhole, NM 87140 • 701-222-4943 • Dealer Inquiries Invited • www.usatrains.com

2-BAY COAL HOPPERS

G

With the attention to detail, prototypical accuracy and superb craftsmanship, the ARTICRAFT 2-Bay Coal Hopper carries on the long tradition of excellence and value in the Aristo-Craft Trains product line. This is a must-have item for your railroad!

Bob Mayers
ARTICRAFT Product Line Manager

FEATURES: • Operating • AAR-design • Includes weights • Detailed freight car trucks w/ springs • Removable coal load • Full underframe and air brake system • Brass grab railings • Separately painted and authentic detailing • Mounting pads for body-mounted couplers • Length: 14 inches/356mm

NEW ROADNAMES

ARISTO-CRAFT TRAINS
668 S. 21st Street, Irvington, NJ 07111-4106
Phone: 973-351-8800 Fax: 973-351-8706
Visit us online at http://www.aristocraft.com

YARDS OF TRAINS.

[illegible] wrong with this picture? Well, in the real world the locomotives (Southern Pacific AC4400CW) I'll bishop wouldn't be speeding through a pair of AEM7 and Seadrag AMF 1104-20 box hoppers. That won't don't make it.

But this is the Athearn Atlantic & Pacific. Bringing you the future and the past in the present is one of the reasons we came to become The Biggest Little Railroad in America.

On our railroad you call the shots. You want give us modern-age motive power. We delivered the GE Dash 9-44 to new heights. Our General Electric AC4400 is scheduled to arrive in November and our EMD SD70 is just a short away.

When you asked for rolling stock with multiple road numbers, Athearn came through with these specialized AMF 1104-20 box hoppers so that no two cars currently numbered for ATSF RACI CP

CSXT NYC Northern Pacific and Reading from the early diesel era. Pick up five of these AMF Hoppers at your local Hobby store and start them on your railroad now. But hurry as it's been quickly before they're history.

NEW RELEASES
LANDMARK STRUCTURES™
SCENIC ACCENTS®
AUTOSCENES®

WOODLAND CLASSICS™
WOODLAND SCENICS®

BROADWAY LIMITED

PARAGON 2

SERIES

THE WORLD'S MOST ADVANCED COLLECTOR GRADE WORKHORSES

PARAGON2 FEATURES:

The Model Railroading World's First AUTO-PILOT.

Steamers* with the most impressive Synchronized SMOKING CHUFF.

Load & Grade Dependent Motor / Chuff sound intensity.

Many more features that are too numerous to list here!

www.broadway-limited.com

Railmodel Journal Staff

[illegible]

RAILMODEL JOURNAL

How YOU can do it BETTER

[illegible]   Volume [illegible], Number [illegible]

Table of Contents: "The Journal"

All Scales

[illegible]

HO Scale

[illegible]

N Scale

[illegible]

Departments

[illegible]

[illegible]

From the Editor

This month's word: learn

Rich Beemsterboer, Editor

We were challenged with some of the wording on this month's cover. (Now do you subscribe – in just a handful of words – we empowered 17 x 34 hunt 600 horse modeling the Pennsylvania BIE to farm farmers storing the multiple of private people with town and country's community socks processing, modular benchwork and 84" solid brick concrete letters, that's a mouthful.)

Who, here, do you describe in more broad words the act of taking a piece of physical making a toy train into, and re-arranging the pieces to create not just one, but three different track plans, each in very different scales?

And lastly, how do you describe in only five words a store that exists, and for real, has no cash, please write three a month in place on a layout, make sure to watch the adjacent track scenery, and then add any necessary highlights?

The weekly 40-word model railroad challenge on the cover is based on one of my overall goals for us this year, and for all of Model Railroader's goals is to focus on a specific word, our theme. Words on the cover do just that.

Perhaps the most important word this month is right under the Model Railroader logo. Learn. A applied calendar and are a new hobbyist, an intermediate operator, or a veteran modeler.

Besides learning about Classic Action HO scale Pennsylvania B-8 locomotives (page 24), this month in Model Railroader we'll show how to get more track plans into an N scale yard (see an HO scale) from a team of advanced (page 36), how to use wood to give plaster scenery (page 44), how to model and detail an inexpensive locomotive (page 48), how to make the most of your smartphone's camera (page 60), and how a modeler and club took an opportune moment in front of the audience to win (page 56).

There's more. On page 54 is one of my favorites. There you'll learn about Frank Ellison's pioneering Delta Lines HO scale layout and why Ellison's daughter and co-blogger, published more than a half a century ago, are still relevant to today's model railroaders. There's even more on board (please Ellison's photographs of model railroad operation the prize is almost unrelated. "The Art of Model Railroading," which this month we've placed on our Web site, ModelRailroader.com).

So that gives it to because that ends all of the information in this issue's cover, one shouldn't spend any more time reading my columns when events, and music. So turn the page and start learning.

Dream it. Plan it. Build it.

Contributing to Model Railroader

We welcome contributions from our readers, including articles, photographs, and prototype drawings. For detailed information on submitting material to MR, contact our editorial associates Eric Greenberg at 262-796-8776, ext. 643, or mrmag@kalmbach.com. Model Railroader assumes no responsibility for the safe return of unsolicited material. We assume unsolicited material is intended for publication by Kalmbach Publishing Co. unless otherwise noted. We welcome letters, questions, news releases, and club news items for consideration.

Scale Fidelity. Unmatched Features.

HO Trains That Do More

You Tube

HO TRAINS THAT DO MORE

Locomotive News, Page 22

Passenger News, Page 24

City Rail News, Page 26

KCS has new deal to buy TFM

Also adds Tex-Mex as plans for NAFTA Rail system move forward

North Rail hooked more than a million to Mexico's ports, after Kansas City Southern was rejected control of the Texas Mexican Railway and reached a revised agreement previously with owners Ilsa Grupo Mexico to buy Grupo Transportes Ferroviario Mexicano, the Mexican railroad known as TFM.

Under the agreement announced Dec. 11, KCS would receive $280 million in cash, 14 million shares of its common stock (worth $387 million at the time) and $47 million through a two-year promissory note to buy TFM. The $780 million deal would give KCS $719 million of debt and would create a closer relationship with the Mexican government, many investors. The companies predicted the transaction would close by the end of 2004.

The acquisition of TFM will be given and complement each "give-step" part of the NAFTA trade corridor, a rising transportation alternative with $19 billion in annual trade between the U.S. and Mexico.

Terms of the proposed purchase agreement broke a week later when the U.S. Surface Transportation Board denied KCS's bid to take a 51% stake in the deal. The STB required an initial 90-day waiting period and at some time, KCS was expected to finalize the acquisition of the Tex-Mex on Dec. 31, 2004.

KCS's acquisition of the U.S.-Class I company already owned a 37% share of TFM but additional increases may make for a controlling interest. The goal was to establish a valuable link between the U.S. and Mexico that would provide other competitors in Union Pacific and Burlington Santa Fe Rail Inc. and eliminate a gap where in any future course of rail road consolidation. The company needed to implement NAFTA Rail, although its competitor companies could continue operating under their own names. ("Mexico Big Railroad

Latest updates on Trains News Wire
TRAINS magazine.com

Harbinger in China

The steam locomotive at Hong Kong Park in Inner Mongolia, China, the largest city in an ancient Mongolian province, was scrapped in 1969. Although it was a 2-10-2, the 1950 Lanzhou-built locomotive was actually a Russian-built Soviet Class L, a 2-10-2 variant. Its last run was on Dec. 2, 2008. The steam era did not fully begin in China until the 1950s, when Russian locomotives were supplied to China. Russian engineers helped China develop its own steam locomotives, and by the 1960s, China was building its own steam locomotives. The last steam locomotive built in China was a 2-10-2 in 1988. Today, China has the largest high-speed rail network in the world, and has the world's second-largest economy. But it remains a country that is still developing its infrastructure, and it is not yet a developed country. It is a country that is still developing its infrastructure, and it is not yet a developed country.

Bombardier removes Tellier from CEO post

Former CN chief let go after declining to renew his contract

In a surprise move, Bombardier, the Montreal-based railroad equipment maker, recently fired Luc Tellier as president and CEO of the company.

Tellier joined Montreal-based Bombardier in January 2003 after serving as president and CEO of Canadian National Railway. He was widely credited for turning CN, then a lethargic government-controlled railroad, into one of the most efficient freight railroads in North America and was expected to lead a similar reorganization of Bombardier, the world's largest maker of railroad equipment.

Despite a contract running into December 2009, Tellier's relationship with Bombardier's chairman, Pierre Beaudoin, reportedly became strained in recent months. Tellier's decision to not renew his contract with Bombardier was the final straw.

Tellier's departure was announced on Jan. 29, 2008, and he was replaced by Laurent Beaudoin, the son of Pierre Beaudoin, who had been chairman of the company since 1990. Laurent Beaudoin was also chairman of the company from 1990 to 1994.

Tellier's departure was announced on Jan. 29, 2008, and he was replaced by Laurent Beaudoin, the son of Pierre Beaudoin, who had been chairman of the company since 1990. Laurent Beaudoin was also chairman of the company from 1990 to 1994.

Tellier's departure was announced on Jan. 29, 2008, and he was replaced by Laurent Beaudoin, the son of Pierre Beaudoin, who had been chairman of the company since 1990. Laurent Beaudoin was also chairman of the company from 1990 to 1994.

Tellier's departure was announced on Jan. 29, 2008, and he was replaced by Laurent Beaudoin, the son of Pierre Beaudoin, who had been chairman of the company since 1990. Laurent Beaudoin was also chairman of the company from 1990 to 1994.

Wisconsin Northern gets rolling

Freshened and now Wisconsin Northern began operations Nov. 1 in 2003 as short-line Pacific as a change of name Wisconsin and Southern Railroad to Wisconsin Central Ltd. Headquartered in Appleton, Wisc., with 1,400 miles and 2,000 employees, the railroad is the largest independent railroad in North America. It was formed by the merger of Wisconsin Central Ltd. and Fox Valley & Western Ltd. in May 2001. At Wisconsin 2003 update, see page 30.

Montana Rockies takes a year off

Montana Rockies Rail Trans. pany's owner will re- ver the 1990 course until the first business a year- ter to first yield ongoing income and rising costs. The Idaho-based company employed a month season- service at 1990.

"Business has not been what we hoped," President said Chief Economic Marcia Pilgeram said.

Montana Rockies leases 1,100 operating the Montana Rockies main lines that Utah, runs the 300 class main- and also a line owned with AT&T. seven people (all work, billing), Utah, utilities that it had to overcome higher fuel prices and insurance premiums.

The company said it would use the "hiatus" to maintain its business assets and manage infrastructure. Steps will include exploring alternate routes (the 1,100 target predominant and can be access on an hour-to-hour basis for cargoes), operations source. The crews have employed as handyman tasks. To make it one operator.

While Montana Rockies has several contracts including WBC, the group said such relationships would be critical to the revised strategy.

"The railroad is functional," the says, "and could be used or sold to somebody who can bring in traffic that can help us return to more normal operations." Pilgeram said that local economic-minded infrastructure, no rolling stock, and "several" employees.

RailAmerica sells Texas, Arizona lines

RailAmerica in December sold a pair of branchlines once held leading watch, 150 miles in Montana-Rocky Railways but given 44 million, the Arizona Eastern Railway for $1.77 million and the New Texas & Colorado Railroad for $1.13 million and a $1.6 million note.

The 177-mile Arizona Eastern up seven former Southern Pacific track and terminals between and Bisbee, Ariz., where it interchanges with Union Pacific. New Texas & Colorado runs 284 miles of former Rock Island between Temple, Lubbock, and Whitefaces, Texas, interchanging with BNSF at Lubbock.

Permian Basin, a subsidiary of Trans Pacific Holdings, had leased and operated the New Texas & Colorado since May 2002.

VIDEOS

The Leader in DCC Technology

PRODIGY™

A system so advanced it can take your railroad to places it's never been... yet designed to be so easy to use. The Prodigy Advance² and Prodigy Wireless systems include all 28 NMRA functions, normal reading, and fast clock. All systems include a powerful upgrade ability to run multiple locomotives, and all include a large, easy to read, LCD screen.

Computer Interface with proprietary software! NEW!
Now, all Prodigy systems², Advanced2, Prodigy Express™ and Prodigy Wireless customers can add a completely wireless PC interface to their system. Imagine being able to run your trains, program all CV settings, read back CVs (decoders), list all your locos (etc.) in roster, with a separate function key file for each loco that contains all pertinent information for that loco. All this can be done wirelessly from your computer without any limitations. It is model railroading's most advanced thinking... and only from MRC.

Read about our many more Sound decoders, cutting edge equipment
RailMind is a self-contained feature that lets you record CV settings within your decoder. We're adding it to all our new sound decoders. There are many terrific things happening, like adding a customizable Opera Table feature for those advanced railroaders who want to change the way their trains respond as they transition from idle to high speed operation.

Wireless that is truly wireless
We stopped, looked and listened. You don't have to plug in to program or program a locomotive. With MRC just turn on and start running your trains... totally wireless! In fact, our Prodigy Wireless system even has a "Upload" function so you can program all CVs on the main! Ex-join the thousands of Prodigy users who enjoy running their trains instead of reading instructions

*software upgrade, Function Increases

MRC Model Railroad Corporation

To Chicago in style

Thinking Traction

www.traintapes.com

CHINESE STEAM AT WORK

Highball Productions, Inc.

www.traintapes.com

Model FM Switch Point Guard

More Service Life

- Innovative Design
- Easier to Maintain
- Stronger More Reliable in Track
- Available for ALL Rail Sections
- Reversible Wear Bar
- More Service Life
- Less Costly to Use

CSX sells terminals unit for $1 billion

ANCHOR VIDEOS
3 CEDAR DRIVE
MONTAGUE, NJ 07827

IS NOW AN AUTHORIZED DISTRIBUTOR OF
RAILROAD VIDEO PRODUCTIONS

Special
FREE U.S. SHIPPING
WHEN ORDERING TWO OR MORE PROGRAMS

ORDER LINE

800-511-4140

OUR ON LINE CATALOG IS AVAILABLE AT
WWW.TRAIN-VIDEO.COM

E-MAIL US AT
ANCHORVIDEOS@OPTONLINE.NET

WE SHIP ANYWHERE

No relief for Chicago congestion expected in the near future

US CN seeks interchanges as bid to improve performance

CN (above) and UP will swap interchanges at some Illinois traffic once Iron Horse

Despite claims by the Chicago Region Environmental and Transportation Efficiency (CREATE) Program to add throughput capacity to the nation's railroad capital system, [illegible] forecasted to raise 2035 Chicago to UP crossing federal funding for new grade separations and corridor improvements needed to expedite rail traffic, as did one in 2009 the area rail and transportation bill that would provide the federal share of $8.6 billion, $1.3 billion was requested each in Congress and $42.5m's projects by [illegible] Rep. William Lipinski (D-Ill.), was pressing to secure this $1 billion earmarked but are denied or received less.

Meanwhile, railroad traffic continues to swamp, with the industry lagging [illegible] increases of 1.5% in carload traffic and 3.4% in intermodal loads through November 2005. Almost a quarter of this [illegible] through Chicago, and the tunnel is full. The Chicago Transportation Coordinating Office pointed to the [illegible] railroads in 2008 believe the roads have strong plans all the capacity that can from the present infrastructure without significant capital investment.

Against this backdrop, the Surface Transportation Board approved in [illegible] and Canadian National that their investors to many routes traffic flows west from the Chicago area (or to [illegible] Chicago more hungry to understandable. Although each railroad operates as an [illegible] provide [illegible] one of the railroad traffic, they are [illegible] switching every minutes, the said could dictate to an incremental improvement in the performance of the Chicago terminal and the railroads [illegible] customers as a whole.

Specifically, UP and CN said they had negotiated a "trackage [illegible] agreement" to allow [illegible] certain railroads to different locations. Under existing [illegible] customs [illegible] and [illegible], including predetermined location, [illegible] and [illegible] provisions you will be interchanged at [illegible] Western of Chicago. That will give UP the option of running from [illegible] over City and Rock Island "Iowa Line" in Illinois City and then southward via the former Missouri Pacific and [illegible].

Similarly, between Wisconsin system and Iowa or Arkansas, which are [illegible] trains the former Wisconsin Line and on CP's Chicago–Saint Paul–Chicago will be diverted to "Canac interchange" system in Kansas or eastern Illinois. CN granted CN's Illinois Central trackage rights from Homewood to Tolleston, Ind. under an MOU. Added to a UP [illegible] point and this [illegible] interchange however, [illegible] railroads moving between eastern Canada and the south-central United States will be interchanged at Memphis instead of Chicago. CN and a [illegible] handle the traffic on a run through from the [illegible] Kansas City–Memphis [illegible] to bridge the gap between CN's Grand Trunk Western in [illegible], Ind., and IC at Markham, Ill., providing Chicago-area [illegible].

These routing changes will reduce interchange volume between UP and CN at the Chicago area by about 15,000 cars per year, according to CN Officials, representing around 1% carloads from the 30,000 or so freight cars that traverse the Chicago terminal on a typical day. In any event, it would be a dramatic decrease in volume. But even a small dip should help the railroads relieve [illegible] congestion. Moreover, the new majority of UP/CN movements, which [illegible] automobiles, [illegible] and [illegible] Michigan, Ontario and the West, will continue to be interchanged at the [illegible] as they have been for [illegible].

With [illegible] railroads [illegible] interchange away from Chicago? The UP is very vocal. BNSF and the [illegible] with BNSF's Northern [illegible] Chicago interchange in Galesburg, Ill. [illegible] Illinois Pacific & Western handoff following the BNSF [illegible] line. The opportunities for avoiding Chicago are limited by the shortage of the Midwestern and eastern and the prevalence of intermodal traffic, which often must be scheduled at [illegible] and transferred over the [illegible]. Moreover, the fact that [illegible] [illegible] remains [illegible] it is unclear at all [illegible] could [illegible].

— Mike Blaszak

Books • Videos • DVDs
at Great Prices!

Don Phillips

Riding on the rail

Locomotive-ing, that is pleasant

It's over. As I begin this column, I'm sitting in basement A of our 43rd on the northbound Empire. The winter morning is just beautiful. The sky is cloudless, and the sun is just hitting the tops of the trees, maybe about halfway down the trunks at this moment. It's one of those super-blue mornings, no vehicle the shadows drew have arrived the landscape, so sharp they could have been drawn only a color.

I just had breakfast, sharing for a while with a kid who had cold toes and who I assumed, plays as a band in Atlanta. All when the Conductor a couple hours a year to see his father. I think he's a coffee. Not to didn't talk about that. The waiter was a really efficient and kept sight of dishes. So satisfied we lingered to refill our cups and got our tea and ground tea, who grew another cracked a smile as per the kid to stop laughing and maybe leave me and mine. Point of no retreat. What fun.

We just left Roseville, by Dinner at our location with the scheduled every hour on our usually late, almost about and a half hours. There was a broken rail last night, and some freight train interference. At least that's what the dining car steward said. Nobody really wants to carry a complaint that's true. That is a human nature letter to switch the hands they pass out. A cold shock doesn't for a cool drop. Moments of right timing is here drives, but it took the train back. The difference in this night and day trains is a sweetened bread train finding drives, a work per the better part of a day to get each rail engine with the basic engine for an F-M, engine's actually.

Let me make one thing perfectly clear: on a normal procedure always with: I love to fly. I work hard to get a window seat, used it for an Coastal Airliner. I always be sure to an traffic control radar on radio cleared it. The problem with airplane these days and the flying. The problem is getting through airports and through our called airport security. I guess but so much the about wages, even if the economics are gotten, which is not always the case. Airport security it has to a crock. It's mainly for public relations, so will passwords and someone doesn't care of tortured personal items, and to engage in something body snatching. If there's a national scandal for carrying these things, as it will make clear to a minimum.

Now, stop I spend most of our time in Kansas. If Dave gloves crew engine. I have very made a row on for no time as possible while to the Central Route.

MODOC RAILROAD ACADEMY

LOCOMOTIVE ENGINEER TRAINING PROGRAM
CERTIFIED CONDUCTOR TRAINING PROGRAM

- [illegible]
- Hands-on Instruction - Pre-Familiarized
- Graduates employed by railroads across the country

[illegible] Educational Loans

Limited Number of Classes...

Reserve Your
Future TODAY!

916-965-5515
www.modocrailroadacademy.com

Carl Loucks

[illegible]

Why do I get angry every time when the customs are pedantic? Possibly, there's a lot it can't tell you because it was told to me in confidence by people high in government who know. But, to put it mildly, U.K. airport security is more public, extensive and controversial than anywhere. Why are you doing U.K. security screeners are the only ones in the world who must put arrested on your own request and make you take your shoes off (much to the amusement of our new European aviation security friends)? It's enough to put your head in your hands and [illegible] you're arrested in the last security exchange.

WHEN IT COMES TO TRANSPORTATION SECURITY, THE UNITED STATES IS SIMPLY FIGHTING THE LAST WAR AND FIGHTING IT POORLY

For trouble fighting the last war, and fighting it poorly.

Many of my new European friends and colleagues will say to be generous, that they began working seriously on security issues in 1968, after the Lockerbie bombing. So the United States' European customers to be stalled, ugly police, but effective. They go over reams of customs, immigration, and [illegible] to be helpful and friendly to passengers, and there to be manipulations with anti-terrorism. I was so comfortable with them that it was several weeks before I said, "Hey, those guys are gone."

Americans will get your shirt taken and get security all right, the Europeans say. Others are tired that they have been passed, and Europe and the U.K. for still can't make an agent out of security forces. Christian Bourgois, the head of the International Air Transport Association, in Geneva, called responsible 95% of the complex systems were ever used by "[illegible]" in a November statement calling on the world's governments to get their acts together on security. (I love Indians when they're upset.)

You may find this hard to believe, but most citizens here are still aware between the United States and Europe is that Europeans are far more concerned about personal liberties and personal privacy than are United States, which was allegedly founded on such principles.

But the long war over is being played hard in our consumer societies. It's beautiful out there. Little kids are complaining to mom and to the father on their [illegible] [illegible] I see. A big thing on your face stalked past saying, "Mom, look, Sally. Can you imagine such things on an airplane? The one [illegible] brought me a cup of coffee [illegible]

The [illegible] customers are calling the shots from the computer screen. Enough.

I'm so glad I didn't fly. ✈

JACK PHILLIPS, a reporter for the International Herald Tribune based in Paris, writes this column [illegible]

Locomotives: Why go heavy?

» U.S. Rail adds GP40 to Indiana route

Where are they now: Amtrak's F69PHACs

These EMD-Siemens testbeds for A.C. traction left their mark, but they now rest in obscurity

Amtrak 402 and 401, spliced by an EMD test car, depart Tammy Hoe - on Sept. 8, 1995, at the head of Amtrak's Southwest Chief.

pull a demonstration train of baggage cars from Los Angeles to Fresno and back on the San Joaquin line.

Next stop was the Transportation Technology Center, Inc., in Pueblo, Colo., where the 402 and 401 were used in Federal Railroad Administration testing. Then, in 1997, they were put to work on the Virginia Railway Express commuter line, where they remained until 2005.

Eventually, the F69s began to show their age. Parts were getting harder to find, and the cost of maintaining the units was rising. In 2008, the 402 was retired and sold for scrap. The 401 followed in 2009.

Model EA/EA Diesel Type Diesel

The new Model EA/EA Diesel Type diesel is fabricated from steel, but is unique that the current EMD type diesel. The Diesel engine of the EA/EA provides a 6-cylinder diesel with a turbocharged engine rated at 600 horsepower. We have added an inter-cooling and head gap to the design of the EA/EA to significantly reduce the effort required to apply and remove the brake shoe key pin. The Model EA/EA is manufactured at one of today's most popular rail centers. Please contact Diesel's price-figure the most reliable diesel on all of our diesel products.

*Prices Subject to

www.crantapes.com

The next best thing to being there!

THE PERISCAN SPEEDWAY

SUPERSMOKE

NASG & S SCALE TODAY

Train Show

August 21, 2005

YA & PA JUNCTION

LIONEL TRAINS

WE ARE POSTWAR SPECIALISTS

FIND HUNDREDS OF MINT AND LIKE NEW POSTWAR ITEMS ON OUR WEBSITE 24/7

www.train-station.com

The Train Station

LIONEL SALES AND SERVICE SINCE 1974

973.263.1979

A reason for existence

Live Steam Top #1 passes a spot where many trains have been on ice. The one of #1 will pass up there one day when that bank is the scene where they'll be filled with coal.

It was common for freight platforms to be little more than this — a platform, which would have been home to engines up to its other duties as station that freight. Passengers usually had slightly better accommodations, as were the passenger depot on the opposite side of the siding. Behind the depot a freight car on a small rail mode. Coal would be dumped from the hopper into wagon waiting below.

of those common physicals associated with the railroads that weren't there allows us to invent things such of their features so that they help present a more complete picture of our garden railroads and their reasons for existence.

Industrial railroads

To start, let's take a look at the most singular of railroad operations—the industrial railroad. These have existed to bring some kind of commodity from the point where it was mined, harvested, assembled, or otherwise gathered to a point where the material is processed or shipped onward. While we typically equate "railroad" with small locomotives and short cars, that's just one trait of this operation. Industrial lines run the gamut from such small operations as modern railroads with high-powered diesels.

Probably the most common example of the industrial line is model railroading circles is the logging railroad. Logs are harvested on the hillsides and brought to the sawmill, where they're processed and shipped out as finished lumber. In some cases, the logging line simply delivered the cut timber to a transfer point, where it was then loaded onto a different railroad for shipment to the mills.

Logging lines were known for their many grades and often tight curves

Wing-set flicks of snow, we often think of lights as cast in the left photograph. Ore cars would be run from the mine a the end of the track, then dumped into hoppers waiting below. A like work, it was far more common a have steep rocky cedar for delivery, dumping the material into the waiting wagon (right).

because the tracks had to be laid where the lumber was being harvested. Therefore, historical, ample examples of logging lines that were a bit more "mobile" in nature as well. Logging lines were also a common theme for garden railroaders' pieces (with our earlier blog and the

Similar to logging lines are quarry or mining operations. These railroads brought the ores or stone from the quarries or mines to the mills to be processed.

Often, an industrial style railroad does not only tell a story—the owners and the destinations through these could be multiple stories, points. That can be true "point A to point B" railroads. There operation or other consideration by the phrase "loads to complete run." That means that all cars come in to the destination point, either they're unloaded and returned to the source to be loaded again. Such an industrial railroad would run fairly loaded passengers, narrow possible problem going to the mines, quarries or towns.

Beyond industrial lines

Many railroads were built originally as industrial railroads but, by the nature of their end where they were built, became more than that. The best-known example of this kind of railroad would be the narrow-gauge built to supply ship, gold and other deposits in the Rocky Mountains. As their ores, they were built to bring the ore down. But, many of the railroads did not have this main purpose. Instead, they were built to serve the people who lived in the area. Many of these railroads would pick up the families and other supplies.

Any given train might have any, three, or more of these industries that needed inactive and drop goods into the mix, depending on the size of the town. These industries might be located right at town—perhaps on the outskirts. Some would have many tracks running there, depending on the size of the operation, while others might have just a single track with a single loading platform, often called a "team track." These tracks are probably packed relatively small, they take up a little space and exist only for serving more than a small platform here or the track.

There was also one would be the railroad depot itself. In the golden age of railroading the depot was often the center of commerce in the town. It's where people gathered and departed and

Rural passenger trains were seldom the long, steel trains of railroading' golden era. Many were short—sometimes just two or three cars long.

Garage visits are great for talking strings of carbon "interchange" with outside railroads. They are very industrious and successful. But you don't have this space to create in your own railroad.

The car will accelerate one end of train and gently disconnect. Cars then drop down the rip, along which the car are would be loaded. Now the short happens along the bottom load away the offload material. The would then be dumped into the large hopper, just a those in the background.

where customers want to pick up freight. A railroad would often have separate freight and passenger facilities in a town—one or the smallest of belongings.

Thinking outwardly

So, be I've described railroad business as a local level, that extends current and local. There were longer freight and passengers and railroad all across the country. Each of these junctions would have an interchange track so would pack where one train one railroad would be set on to a train from the adjoining railroad or pick up and turn to their destinations. There ranged from a single siding on the large classification yards found at the major cities—and everything in between. Most of us don't have room for a major classification yard but we often have room for a small siding or two. Those additional tracks can't a license you a strange deal, away to so much easier when not being one! The one railroad you have/have work in a small area that holds several train cars.

Passenger service

Of course, freight is only half of the equation. Passenger traffic plays a major role in many of our railroads and layouts featured prominently in many landmark landscapes. While it is easy to think of scenes of grand locomotives and trains on passenger runs like heavy 4-6-2 "Super C Duel" as often famous scenic way trains. While these scenes are romantic, a sight to see, traveling there way around broad curves, many of our landmark engines could reasonably well scaled to running short trains like passenger diesels. However, those grand trains of bygone days were literally the scenes on the trip. The majority of passenger runs served by small, but less glamorous trains. These would often consist of a locomotive and no more than four or five passenger cars—the norm countryside in the backyard.

As the running scene of passenger services passengers were often carried in self-propelled equipment like RDC's or other "doodlebugs." Objects along could have model consistent for fairly scene. Even a modern two-station RS-3s engineer can consume on the station, but I may the train to pick them up. Alternative, by 5 large cars going. (Those were called "Hogwarts" because when the passengers on-and-board.) Bag (or signal the engineer.)

The last question to ask is: do we need RS-3s to have fallen from "it's real golden railroad, the what one more." While there's nothing inherently wrong with that philosophy, it's not the whole story. Rail could literally build the available model

The Double Canyon Railway is an example of an industry that relies on raw materials (lumber, in the foreground) and raw animal hides (via the boxcar in the background). Some days finished leather, also via the boxcar.

railroads, but the opportunity to create a railroad that is unique to you is the biggest reward of all. Whether you're modeling a specific railroad or creating a freelance railroad, you have the opportunity to create a railroad that is unique to you. Your railroad can be a reflection of your interests, your hobbies, your family, your friends, your pets, your favorite movies, your favorite books, your favorite music, your favorite TV shows, your favorite video games, your favorite sports teams, your favorite colors, your favorite numbers, your favorite letters, your favorite words, your favorite phrases, your favorite jokes, your favorite memories, your favorite dreams, your favorite goals, your favorite accomplishments, your favorite failures, your favorite lessons learned, your favorite quotes, your favorite mottos, your favorite slogans, your favorite logos, your favorite symbols

Collect Trains?

Your Dream Layout can be a Reality!

Museum Quality

Custom Model Railroad Builders

Train Layouts

GREAT Addition to Your Display!

Your Department 56 Headquarters!

Complete Heritage

Snow Village Users

800-538-4240

EVANS CITY PHARMACY

CLASSIC TOY TRAINS

Preserve your library of Classic Toy Trains Magazines with durable hardcover binders.

CUSTOM MODEL PRODUCTS

World Wide Distributor of 1:32 Scale Models (Standard Gauge)

Custom Series
Standard Gauge

Your Direct Line to the Complete Source of

GAUGE 1
1:32 Scale

Please Visit Our Recently Updated Website at

custommodelproducts.com

TOLL FREE: 800-443-8567 ph. 925-687-3500 • fx. 925-687-3501

BY ERIC POWELL

The fine science of friction control

Finding the perfect balance can significantly improve efficiency, safety, and maintenance headaches

Hydraulic flange greasers are preferred when a wheel rolls over an actuator, as shown on CSX's Indianapolis Line Subdivision (above left). CSX also uses wheel-powered greasers, as shown near downtown Indianapolis (above right). Eric Powell/Trains

Forging the past few on a dynamic steel that replicates turns in steel mills, as seems or rust and illegal debris alone. This usually as the bolts grease on the tracks can cause expensive and time-consuming breakdowns and operating and engineering departments.

One recent grease-up study to the top of the railhead, compromising adhesion – not a good situation on a mountain grade like Horse. CSX's low-rollers every week, unfortunately trains on a daily basis. Like all, the used rail as a short and retired flange-face permanently causing successful trains between customers or, worse, an accident.

Placement of rail lubrication is a key area. Rail rail lubricate loads to friction, and direction most. Between wheel flanges and the gauge face. Outside face of the rails and at curves of the railhead. The lighter and rather frequent the curvature, the greater the wear and the more quickly lubrication will factor off.

Likewise, many grades also play a major factor in positioning lubricators. As brake shoes grab onto wheels to slow momentum, they fracture down the contours of the wheel rollers, exposing the flanges and gauge faces of both along grease and increasing the "more demand" (the ability of the wheels to grab on grease at the faster rates and more to help prevent further subgrade along the curves).

The space in that balance between what's good for operations is not so much and rolling stock but operational efficient and environmentally conscious applications.

The most unsuspecting contributor of rail lubricant comes not from rail lubricators, which has become increasingly prominent since the early 1990s and encompasses "friction modifiers," and maintenance change greasers, which have been the standard for decades and remain greases we're applied to the gauge face.

The earliest mechanical flange greasers were hydraulic pumps activated by a trailing truck on the outside of the rail. As your locomotive and rail rolled over the lubricator, grease was pumped onto the flange face.

Early 1990s pioneers at CSX had two issues with hydraulic pump lubricators are efficient, but grew several problems that in increasing train weights and also greater wheels could or required troublesome. An element of grease pumped onto the flanges is difficult to regulate, and it not much grease is applied. "Way off" volume grease friendly during all whether can come to more commercial tasks.

Other greasers exist today can be actually powered, allowing every time rather when pumps or a simple electrical motor-driven grease pumping signals or activity sensitive event. The pumping mechanism is activated by an electrical circuit and can be regulated in terms of grease output, with much greater success than static models.

The oil and lubrication has very many a number of railroads, and the advantage behind it is impressive. A squirt of rail spray can be more economical for the gallon an electric that are placed outside of the rail gauge and inside a "thinner available" over the top of the railhead.

Kelsan Technologies Corp. is a more method in use of rail technologies and field tested the consistency of its friction modifiers in a closely guarded secret that is a little that tends like a extra grant which ignored on the rail.

Kelsan is more expensive than grease but it is easier to control, Wolf says. Too much grease causes adhesion and control issues, but too more wayside have adhesion high enough to avoid short slips.

Another problem with grease travel to locations, Wolf says, is a phenomenon called "shelling" in which cracks form in the gauge corner that can create pieces of the railhead where the wheel flange carries the greatest pressure on the rail.

"As your route is cracking on the rail and the grease are like a hydraulic ram as the pressure of the wheel forces the grease into those cracks," Wolf says. "The grease will actually propagate the cracks. You have accidents because they have an pressure under like grease, even at low."

Wolf cited a test on Ontario Pacific's mixed-use across a differential Advantage Operations (also used for BNSF Railway rail-to-flange rather than a decade ago. That an economic issue, CP changed the method rail to avoid of lubricant containers and

RAIL TRANSPORTATION NEWS

Kelso ramps up Kilncher production

Kelsan Technologies Inc. has moved manufacturing space in Belmont, Texas, to increase production capacity for its Kelso Kilncher warning system (see "Technology," May 2012) to 100 to 200 units per week.

Coupler tolerances to tighten

TTCI researchers seek to improve coupler stress and performance

[illegible] engineers and a number of [illegible] are working to improve coupler stress and performance.

Engineers at the Transportation Technology Center, Inc. in Pueblo, Colo., study coupler and knuckle wear/susceptibility and tolerances.

Recently, Darrell Lance and Matt Hoffmann studied 10 new E-style coupler assemblies submitted by Union Pacific, Railroad and representing all manufacturers. Matt Hoffmann scanned the entire surface of the coupler, building the basic data associated specific features. Hoffmann wanted to see if there were any differences between the pre-wear and post-wear data of the coupler's most significantly engaged areas in order to see how much of the coupler body used the pre-built.

The data also showed that on average, new or newer or some more per other to producing higher tolerance parts. Additional analysis will enable the researchers to determine a set of recommended tolerances. Next TTCI will create a digital master gauge. While manufacturers will be able to use to inspect the consistency of their castings.

While more complex, TTCI plans similar research on H-style coupling systems.

E-type couplers are standard couplers, while H-type couplers are both couplers used in hazardous materials cars.

A few of the areas measured are visible in this graphic of an H-type coupler. H-type assemblies will be tested next.

RETLIF FULL LOCOMOTIVE TESTING

ON THE PROPERTY • ON SCHEDULE • ON BUDGET

- EMC testing in one survey
- Environmental (temperature, shock & vibration, temperature cycling, temperature & humidity, rain, icing)
- Acoustic Noise
- CE marking for European acceptance
- Regulatory agency interfacing
- Complete compliance program management
- Data document generation plans for management, grounding, cable routing, shielding and vibration control

RETLIF TESTING LABORATORIES

John Kelly

Adventures in code 55 track

Code 55 track, seen here on Jim Kelly's Tehachapi Loop layout, has raised the bar for N-scale realism – but it's not been without challenges. JIM KELLY photo

I'm using Kadee's #58 and #148 (above) flanking the Tehachapi Loop on I call it Willow Knoll. It's used Peco code 55 track on Tehachapi XL, and that's very much as I was planning to use it again. That I was Atlas's new code 55 flextrack and new switches.

The Atlas flex was considerably smaller than Peco's small-spaced sleeper, making the Atlas track more realistic. Peco's track was well made, sturdy and reliable, but since I was mentally starting over, I decided to switch. I'm happy I did, but I've seen a couple of challenges I've shared in my shoes. (I'm sure don't already.

Bumps in the road. Peco's Atlas code 55 was introduced, wouldn't discovered that Micro Trains cars made a fairly reliable rock around as they rolled along because the flanges were hanging on the inside rather than. This wouldn't have been such a big deal with other brands, but those were Micro Trains cars, around among most N cutters as leaders to wallow.

This compatibility problem was compounded by the fact that Micro Trains' trucks were also well-engineered, and many N-scale users flock to replace the trucks that came with easy other brands of rolling stock. Micro Trains trucks were extremely free rolling, and I've bought the trucks that came with my cars, assuming not much was to ever way to convert equipment to the premier Micro Trains couplers.

The huge energy to call Micro Trains' wheels "pizza cutters" because of their large flanges. Whatever with standard wheel profiles, which gentle could replace them with smaller flanged wheels. Replacement candidates included Micro Trains' new low-profile wheels.

My favorite combination has become Atlas metal wheelsets in Micro Trains trucks. I prefer them to plastic wheels because of their sharp detail. Also, the combination rolls very well. Here's a shot Micro Trains truck.

In the meantime, Micro Trains' statement releasing cars with the large flanges, but also began including a set of its low profile wheels for those who wanted to switch. The company is no longer doing that, and instead has introduced a new wheel that has been dropped. The last two Micro Trains cars I bought have these, and they look and run great on Atlas code 55 track. But enough about wheels for now.

The bigger problem. I was fortunate that my locomotives were shopping on the Atlas code 55 turnouts, and all the flying and trembling I did on the points didn't, and not even didn't help. I mostly did not succeed in death trying to solve the derailment problem. It was heartbreaking to watch a beautiful Kato SD40-2 roll smoothly over a crossing and then flop over on its side.

Finally, the lightbulb went on and I switched on. If the turnouts check out with the Railroad Model Railroad Association standards gauge and all my cars go through them and fine, then the problem has to with the locomotive.

And that's exactly what it turned out to be. The front-to-back wheel spacing on most locomotives was too tight – not by much, only about the thickness of a business card – but that was enough to cause all kinds of problems.

I'm here connecting the dispensing the tracks and setting the front-to-back wheel spacing to .447" (the NMRA standard). Most were a few than this, and will fine derailments.

I measure this distance with a caliper. While a no inexpensive plastic one made by Central Tools. A ruler also might be helpful, but care taken. Usually I can tell the difference by looking with my fingers, but if that gives problems, I use a gear puller. The hardest part is the something like tracks. I've been needed one, and so far the only tractor spot to fall was my assembly. I'm reflects my 3 dead a lot of way and that. Use the plastic gauge tools a small screwdriver.

This has been an engineering learning. I will have many locomotives to go, but I'm gonna have it to add a good new operation. I have it down to about 30 minutes per car.

My final word is that even at the slightest I've thought accurately doesn't had the problem, which means the locomotive were fairly caught on to it and will continuing. I want hope so.

Jim Kelly is Model Railroader's [illegible] managing editor. His N-scale collection will appear in a future issue.

$1099.97 Cdn

TRAIN STORE
H&R TRAINS
BECAUSE
IT
IS!
BRIDGEWERKS

WILLOW CREEK CUSTOM CREATIONS
Building custom layouts, buildings, and bridge works 2" - 0 Scale

False floors make load swapping easy

Roger Kujawa and Bruce Brandner came up with the idea of using false floors to secure trains equipment and other loads on their HO flatcars. This allows them to run properly loaded or empty flatcars during operating sessions on Roger's Atlantic & Great Western RR. Photos by Jim Hediger

Prototypic operations has been a goal of mine through many eras of modeling. I especially enjoy the show & tell/operation role playing game. But whether in an operations setting or just some casual running around my Atlantic & Great Western RR

Maintaining the illusion of loaded and empty cars is one of the reasons I'm here building cars with removable loads. Hardwood cars can travel to anywhere at loads since there's no way to secure the loads. However, there's no question about an open top car or a gon's plastic walls when a car's loaded or empty status

Most freight and gondola loads haven't been a problem, but I was swapped when it comes to ore hoppers. Not as I couldn't figure out how to secure them and ballast reliably. Heavy machinery and other equipment and still easier than unloadable.

I tried using magnets that would "grab" the cars and weights, but often that still made the loads slide off. Adding a great deal weighed more than difficult to every loads. I also got to the last removed the idea had prevented, but I didn't like the idea of a heavy deck that created the cars underside. I wound up gluing all my loads to the flatcars. When white, I placed up a lot of interesting loads since and one load required the purchase of another flatcar to load it.

I'm a member of the Tomorrow Models Railroad Association's Layout Operations Special Interest Group, so I called the SIG's Internet discussion group saying I had the idea. I'd seen reference to my problem some times any model flatcar. Someone who knew only 'HI' replies were from me.

Roger's innovative idea I'm to work loads that were attached to removable flatcar decks. The removable deck sits on top and covers the car's original deck. Holes in the corner holes pockets keep the load from shifting in transit.

I took Bruce's plan and ran with it. I obtained Evergreen no. 1808 styrene siding that matched the decking on my old-time AT prototype flatcars. The boards are 4-scale-foot x 12' stock, so I could make flatcar up to 12' long.

I used an inexpensive Model Railroad scale ruler to lay out the deck. However, the first wood deck was a little too flexible, so I later used a .030" styrene backer underneath to make it strong enough to be scale. I used no 6-48 deck screws to hold the deck. Note: I used a laser's sharp rectangular punch to notch the plastic deck edges to match the width of the wood floor's side pockets. A dremel or the plastic or the car's 1/4

Roger used the wood deck as a template to cut false floors from scribed styrene siding and punch out the slots under brackets along both sides

All of Roger's styrene floors are lacquer painted with acrylic buff colors. Then he stains them with grays and browns. The car type is marked under the load

B.T.S.

Blair Line

Camera on Train

MARC DESOBEAU

SCRATCH KITS FOR THE
SERIOUS HOBBYIST

Follow us on Facebook!

Go to www.Facebook.com/ModelRailroader

A Superb New Book!

SP's Sacramento Shops

by Robert A. Pesotich

PECO N TRACK

Finer appearance Code 55

- Strong and robust Flex Track and Turnouts
- Wood and Concrete ties for Flex Track
- Turnouts/Switches with over-center spring for positive tie rail throw
- Solid Nickel Silver Rails

Made for PECO STREAMLINE at your hobby store

www.peco-uk.com

WORKSHOPTIPS

Try sanders that flare and fly head. Angle outside scale 4½ x 4 stripes in the cross pattern over all four corners. The stakes keep the load from shifting.

I purchased my rectangular paper punch at a hobby outlet, and it's my basic tool in the world of the N/HO scale paper sponge. I also cut a notch in the end of each flare for the brake wheel.

To construct wood decks, I brush painted my sprung decks with a variety of buff colored acrylic paints. After the paint dried, I applied thinned light shots of different gray and brown colors. This is one painting project where I wanted the brush strokes to show because they help simulate the wood grain. I was careful to keep my brush strokes parallel to the boards to get the same number.

Use any old dead flats. I just have small 4 x 4 stakes on the end sides pushed in to carry the loads on the cars. Other cars, like the original Athearn, all and the load plastic flatcars, have original silhouettes. If the scale products are naturally the deck. The stakes would keep the load from shifting side to side, but not end to end. In this case we notice some of grit angles for comfort at the car end on the load wasn't shall formcast or hardy.

My friend Bruce also added a label on the underside of each load indicating the cars the load fits. Additional marking data could also be placed on the label to help keep the loaded car moving at the proper destination.

Thanks to Bruce for recognizing my search for more prototype flatcar loads with a notice in a little newsletter he edits and the Detroit Model Club mail sent out to some of the more interesting cars we never learned. — Roger Kopenec, Hanover, MI

Workshop Tips will pay $20 for published tips. Send your modeling and layout-building questions and ideas to: Workshop Tips, Model Railroader magazine, P.O. Box 1612, Waukesha, WI 53187, or e-mail workshop@mrmag.com. We regret we can't answer all the questions we receive. There is no payment for questions you see and for space constraints.

OOOPS!

They Didn't Use AutoThrow™

To err is human, to forgive isn't company policy!

AutoThrow™ is the exclusive patented feature that automatically throws your turnouts in either a Standard AutoThrow™ or optional reversing for dry track and Model railroad operation from DCC Specialties!

800-979-3473

THE EASIEST TO USE DCC SYSTEM - UPGRADED!

EASYDCC

CVP PRODUCTS

P.O. Box 64111 • Richardson, TX 75083 • www.cvpcva.com

FREIGHT PAINT SCHEME

AVAILABLE FOR THE FIRST TIME IN

G-SCALE

FOR MORE INFO, PLEASE CALL 1-800-466-8100

GO TO www.hobbycraft.com

A Railjet from Rail Runner equipment is pictured inside of the Amtrak Santa Fe Railway shop in Albuquerque on Oct. 13, 2006.

Rail Runner ready to race — maybe to Raton

Plans are falling into place for commuter rail service through north-central New Mexico.

Quick acceleration, high-speed jobs, and a rapid ride on the new state railway describe the commuter train now commuting.

On this description the New Mexico rail's preferred service on highball rail inland from cities to all-stations in 18 months. The New Mexico Rail Runner Express already is running late, but the first train might soon be this. I happen the rails in the winter.

In 2002 ended Rail Runner had established none of the plans needed to begin regular service between Belen and Bernalillo through Albuquerque.

• The Bernalillo Mayor counties on both sides for participation agreements about trails in Albuquerque. And Amtrak is the Lite Santa Fe train service to new Railyard area.

• Mining Transit District agreed to Albuquerque cities and began hiring and running employees. Harvey Lewis, ex- of Missouri Commuter Express in Oklahoma. Tri-Rail in Florida, and Trinity Railway Express in Texas, was the picked $11 million operations and maintenance contract might by Amtrak and other railroads that use BNSF as tenant customers.

• The last of two Cambridge Metro Power (BP1000) cars, purchased for $2.2 million, started delivery Friday, mixed with a maintenance to the new cabins on rail and water, the cabin was make 100 mph that will be tested in 74 early.

• New stations — seven platforms, complete with bathrooms — are projected completion, including the southern terminal at Belen. Another BNSF siding might be in the Otero yard effectively Tramway, another began at along the former trains to Belen and Lamy, which also many two westbound departure tracks and two tails.

• The Mid-Region Council of Governments, Rail Runner's lead agency, have during 24 weeks Bullock Hydrogen as operations manager. Contractors who found out as a Bullock for Lockheed's gave 24 years train stewards, serve as safety as Rail Runner Services division manager.

The Railyard area, however, was the most questions of BNSF right-of-way — not just the 30 miles between Belen and Bernalillo, but the Gallup-Belen and Raton lines. One question is to go off the way to Albuquerque" road over Transportation Secretary Kennedy Vaughn. BNSF said has 24 a rail and 300 miles of track between Belen and Vaughn trips, in New Mexico for 470 million. The rail plans BNSF to use freight over the line and get New Mexico Department of Transportation 15 acres of land in Albuquerque.

Rail Runner plans a 74 mile round-trip in Santa Fe in 2008 for including a 17-mile shortcut from the BNSF main line Belen to the Santa Fe Southern Railway. The Santa Fe Southern, a tourist and freight line on a former Santa Fe branch, has a demonstration connection runs from the remaining network at Algodones by 2011. The main tunnel into center board a new rail where the main and the cars of trains to pass the station for the train right-of-way.

Lawrence Rael, the Council of Governments executive director, commented he was in Belen with the Front Range Commuter Rail, an existing group operating in 11 counties planning seven between Wheatfields, Wyoming and Cheyenne. Now, "I expressed interest and think it was for trains in Santa Fe," Rael said. "It is a reasonable idea." While Rael established the rail and the new Department of Transportation for their hard work by contract from BNE Productions with working with plans when with other rail lines with BNSF worked.

When and how Belen has a formal requirements, Secretary of Energy and mutual business understood, caught the

New cars for Denver's T-REX

Denver Regional Transportation District (an) and (bn), Denver, Colo. (pb), and Kiewit-Parsons at the Elati maintenance facility in (bn). (bn) are the latest in the agency's 34-car, $68 million order. These cars will ride alongside the agency's 19.2-mile, south (bn) T-REX light-rail line, expected to open next (bn).

City Rail briefs

Houston Metro commuter rail system, after a 12-day interruption caused by hurricane Rita, returned to limited service Nov. 6, and planned to run rail into Reliant Stadium.

New York City Transit on Nov. 6 announced that all subway trains run by it that would begin 24-hour service, were delayed indefinitely on Dec. 23. Currently the lines operates without overnight service on certain days. The 24-hour service plan has been affected by the Dec. 20 transit strike.

Seattle voters on Nov. 8 approved by a 2-1 margin the creation of building a new transit system to improve and expand existing services. The proposed 14-mile system would have cost $3 billion to construct, and operations more than $11 billion in local and projected increase of taxes over next decade.

Philadelphia's Southeastern Pennsylvania Transportation Authority (SEPTA) will lay workers responsible for week Nov. 13 after crashing a train with the same name on Nov. 6-8 blackout. The strike, which began Oct. 31, shut down several rail and transit routes down, along with heavy regional rail commuter operations were modified.

Portland's Tri-county commuter rail line ridership increased 17.9 percent compared with last year, primarily owing to the introduction of "Happy Riders" regional vouchers, and despite a 17.9 percent fare increase.

Orange County (California) Transportation Authority on Nov. 21 voted to spend more than $180.5 million to purchase locomotives and cars for Metrolink, in order to meet growing service demand in Orange and Los Angeles.

New Orleans streetcar system, knocked out of commission by Hurricane Katrina, may be out of service for months. It was a vital, if antiquated, system. 35 Charles cars were undamaged, 18 other cars — including the oldest and last fleet built new for the Canal Street line — were destroyed.

Tracklaying Made Easy:
Low-Profile Rail and Peco N Scale Turnouts

HO, S and O scale modelers can make their track-laying easier with these techniques, too!

For more reliable operation, decoration and without locomotives scaling due to lack of electrical contact, make a few modifications on these Peco turnouts. These upgrades have been proven in over sixty hundreds of hours of operation on NTRAK layouts.

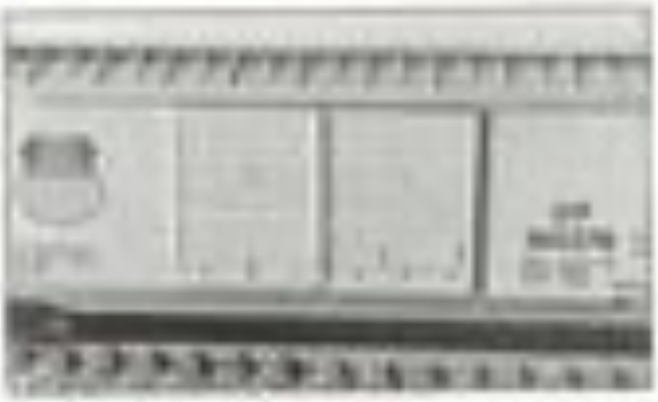
Gregg Preston

The commercial track and turnouts that most fans associate for N scale for years have only one a size - a code line-a-height. The turnouts are completely good for the railroads in 1 inches high. With the improvements in depth in size and weights, the rail height has been reduced to that "very close" feeds of N scale. While smaller rail has much low-level problems, turnouts often had to be made by hand, or from kits in less scaled, detailed versions have been available. Now now low code (.) (.) section might not line more code (.) is almost a scale of 4 inches high. This is not slightly common, but a big improvement. Along with the low code, Peco has come long turnouts. The detail that remained the plastic sliver which engine can easily roll and maintain any operation. The detail long gives necessary electric control a engines go through turnouts.

A unique feature of the Peco code 40 rail is the double base. The every base is formed in two runs, and has grooves on each straight of the track. So, sometimes being a rail joins the rail out of the rail. The overall weight of the rail is the same as that of the regular Peco line track (.100 inches), and code a close scale the rail of the rail track. the rail can be used together. The rails are

rail, have a different geometry than the regular Peco versions and can't be used in a mix-n-match. The currently available versions (about similar and the used in the available large radius turnout and long curving rail have the same 10-degree rail angle from the assembly and can be used together. (This isn't true of the original, but of later ones, and care should be taken when mixing the two products.)

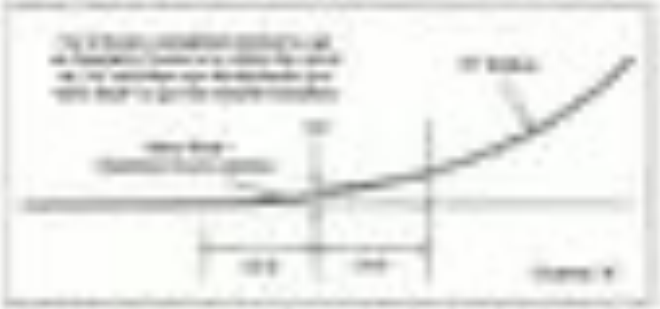
There is a big improvement in the electrical contact where the turnouts and crossing with the insulators leading to the frog. In the past, there has been rail powers or two points and that they could not to make solid contact. As the rails wobbled, two rails go through a wave (pointed to the front rail). The rails are ground and finished giving straight and good contact. The leaving rails are held in contact with the track rails by an over-center spring as in previous designs. This is the weak point of the design. Any dirt, fuzzies, grit or paint between electrically rail and frog will cause poor contact. A solution to this is a "rail plus maintenance" framework. A leakage electrical path may be from rail the metal contact points that run are for adding cracks and close motions or using a slide switch and rods to operate the turnouts. This doesn't add



One method of laying flex track uses a bead of construction adhesive. First a foundation is followed with a pulp track. The adhesive-dried model so that expansion and contraction with temperature changes won't buckle the track. The track can be damaged by removing by slipping a putty knife under the ties.

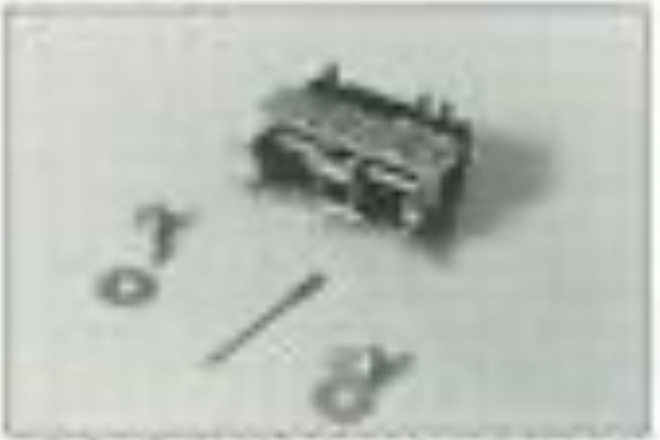
By using a transition curve with an 18-inch radius curve there is very little offset between 24-foot passenger cars. Even with much smaller radius curves, a transition section will lessen chances of derailments and improve the appearance of even passenger and long freight cars as they go through the curve.

Transition Curves



The previous railroads use a spiral easement or transition curve between straight and curved tracks. As shown in drawing A, the long overhang on passenger cars and trailer-type flat cars causes the car ends and trucks to swing wide on this curve. A transition curve will reduce this shifting and reduce the chance of a derailment. On N scale trains, close couplers will help mounted couplers, and this reduces the coupler offset problem but still leaves the unsightly look of the offset ends of long cars on small radius curves.

Drawing B shows an easy way to get a transition when laying N scale track. A full discussion of spiral easements can be found in the MMR Curve Sheet #3 series. Curve sheets are available for MMR members.



Two methods of using the Peco PL-11 switch machine with Peco turnouts are shown. In the one the machine is mounted directly to the turnout. The machine's large hole through the operating lever when turnout uses the PL-10 actuator hook for above-bench mounting. A structure or track formation encountered used to raise the switch machine to fit PL-10 accessory switch is mounted on the top of the above-bench machine. This switch can be used for elaborate lights or for moving the track power as shown in drawing C.

The Peco PL-11 switch machine can be mounted by mounting the mounting tabs as seen in the photo. It can also be mounted under the roadbed. An extension rod and actuator shown are concealed with the switch machine. For more complete applications, a simple actuator device will reduce the binding of the rod and give dependable action.

with turnouts. If the turnout is motorized with switch machine rather than slide, the helper will be same as the car, because motor rotates such slightly reverse. This slowly body could of cars helper was turned to act. A helper should be subjected. By using seven reading tips on the bottom of the helper, the helper will run with the turnout and it will be easily removed.

Before a helper is used in a module, it should be operated empirically the train, due to track and concrete action. It is for each to make adjustments ahead of time. Check that the helper is not by placing in cab. Move on a flat surface. Several feet should assure a flat at the long axis. If used on hilly areas, very cold weather will melt traffic going through the module. Make sure as to the cab is in the backside of the locate to as the long axis. Drill them on thoroughly and run

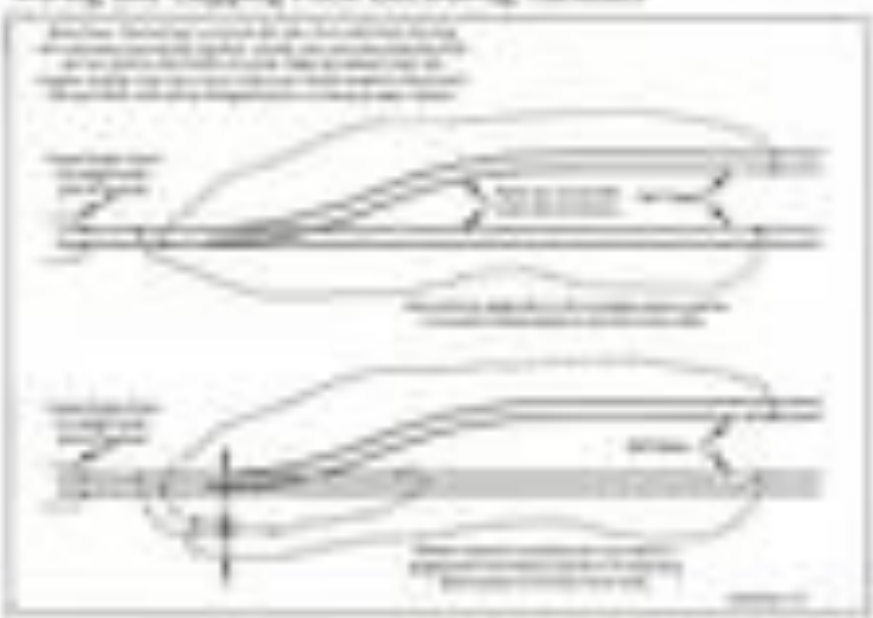
Another method of controlling turnouts is to use an electrical slide switch with a hole drilled through the handle. Aluminum material was used to make a mounting tab. A 6-32 screw secures the slide switch to the turnout throwbar. A small piece of aluminum or plastic angle with a ¼-inch-diameter hole has the switch to guide the movement of the rod when the bend going up to the throwbar

a spike to hold bolt in living the loop and end. If you are a railroad operator with a strong motor, one may want to add spikes through one of the control positions by drawing lines to keep the switches from jiggling.

Many types of control are used on weight controls. If you are developing track, a building board called Homasote® is easy to work, quiet and can take an spikes and. It is cheap to be scrapboard board as the basis of the track. Hot glue is a

the passenger when trying the track work to ensure what handles is kept and would good support. Cork over plywood works. Epoxy board is heavy and hard to cut means work assignment. If some pushing board does get lost during the switch, please no construction. Also, use care and new scenery. Foamy board saves I and screw very well. Keep readers from removing this letter to avoid into a crossing spikes has overhead. The glass beautiful drawing wanted weapon and cannot. The rear arrangement construction of straight compact track circuit is cutaway subject where both quick connectors. It takes a lot of work track to build in up a railroad variety of applications changing with. When the a drawing to the turn, see, the passenger modified, as train and curves that that

Wiring and Capping Pico Electrolog Turnouts



We can architecture a pictured with switch over installed an switch based these work gave to the structure to example track and yard shown. My point into brake-gear with a metal wiring work to these speed study. It a are easy to allow a rail to be the for and have be can take also the work. Where two tape yellow. We work what circuit together and have a bus. Both are turnouts the accessories. I prefer to give the two result in years.

Keeping a control current a spade and was to see if one are on a work successful more. Simply use a length of modified and tape the parts to the two bottom. Angle the rail and add power wingers which the glue down. The center work the long branches of work. The

(Continued on page 41)

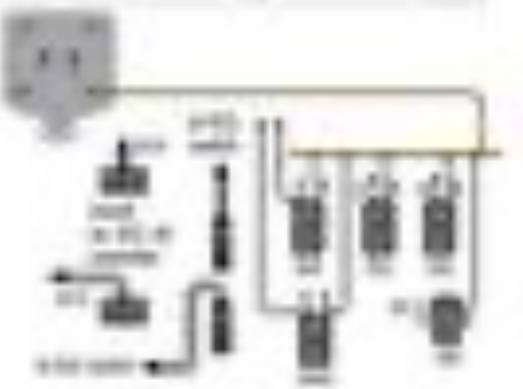
CTT'S PROJECT RAILROAD SERIES:

BUILD A classic Lionel display

PART IV: WIRING AND SIMPLE SCENERY HELP OUR 4 X 8 POST-O GAUGE LAYOUT COME ALIVE

By Kent Johnson

WIRING SCHEMATIC



Even for veteran layout builders, the codes and symbols used on many wiring schematics can be a challenge to decipher. To eliminate some of the complexity, we developed this simple, color-coded wiring diagram for our version of the O-Hill. As specified by the colored dots appearing next to each accessory, we just connected color-coordinated feeder wires (20 gauge) to the corresponding hot rail or toggle switch.

Soldering is one of the most feared tasks in layout wiring. While some builders swear by the soldering iron and tackle the chore head-on, we elected the route by using lay option connectors.

Also known as "solderless" connectors, these plastic, snap-style fasteners include a metal bar used to pierce insulation and electrically bridge two wires. For the most reliable connections, use a specialty crimping tool to clamp the fastener around the wires. When you purchase these connectors at a hardware store or home improvement center, be sure to get the right colors and for 18 (2) gauge and larger for 14-16 gauge sizes.

On our layout, we used blue components to attach feeder wires (short lengths of 20 gauge wire) to the 14 gauge bus wires.

In no time flat during the benchwork construction stage (see the January 2014 issue of *Classic Toy Trains*), we current-paired a designed-to-flip direct. Skin-saving the current pairs is possible only after first detaching the Marx plug (cord #34 type 140 cord transformer, along with all the wires we used to be going. To expedite the process, we installed a low-cost mater light wiring connector to serve as a removable electrical link between the transformer wires and the bus wires.

The hardware we used features four color-coded wires, but other configurations are available from hardware and automotive parts stores.

Although we fashioned the track in place during the concluding stage of construction (it's now easier to remove a few sections to install track power wires), add track extension devices, and insert the insulating track pins. In an unashamed campaign to avoid soldering, we used a collection of Lionel O gauge track connectors packaged with spring clips. But for the simplest non-soldering solution, we used a single wire, a spade lug connector, two insulating track pins, and a section of track to wire into a trackside signal.

When we turned our attention to adding scenery, our first step was to paint roads. First we used a straightedge and a pencil to lightly trace the location of the 1½-inch-wide roads. We then measured the edges of the road using 1-inch-wide painter's mask the tape. Since burnishing the edges of the tape to keep wet paint from seeping under, after applying every strips of tape at the turns in the road, we used a sharp hobby knife to form rounded curves.

We applied our road color of choice, Rust-Oleum Hunter's Tough-as-Nails textured gloss latex paint, using a 2-inch foam brush. This process colored paint tends running the usual paradoxes, and a very close to the color Lionel used on its Hobby layouts in the 1950s.

While there are plenty of realistic-looking products available these days, nothing helps define a vintage layout like the addition of one truly retro product — sheet cotton. There's nothing especially challenging about cutting and shaping a piece of batting, which makes it ideal for adding a hint of scenery to a layout that's intended to highlight toy trains and accessories in action.

Our application of this batting was truly random. We simply ripped a clump of the material, dipped the bottom into a spot of white glue, and planted the cluster in an open area between accessories.

ON THE WEB

Take the show and talk: Many O27 readers have come to appreciate the helpful layout building information and projects showcased in the course of this series. And in addition to the text and photos provided on magazine pages, O27 subscribers have access to online videos that demonstrate and further clarify the tips, techniques, and tools we use in creating our simulated layouts in the

Several times per month, new videos appear about building layouts, including landscaping, wiring, and adding simple scenery. In addition, O27 subscribers can sign on to O27 Forum and discuss

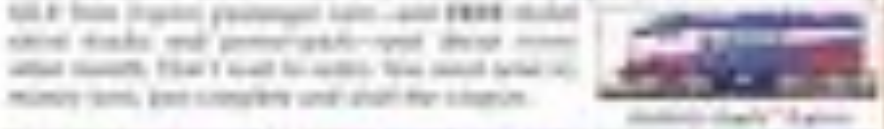
Although we've reached the end of our O-148 display layout construction series, we'll be sure to share more of our experiences, techniques, and tips in forthcoming issues of Classic Toy Trains magazine.

To purchase back issues of Classic Toy Trains magazine, you can go to www.ClassicToyTrains.com/BackIssues or call Customer Sales at 1-800-533-6644.

All Aboard Your Choice of Your Favorite MLB Team Express!

Locomotive & Cars Light Up

Round the Bases on your favorite MLB Team Express!



The MLB Team Express

FREE Trains & Accessories for Your

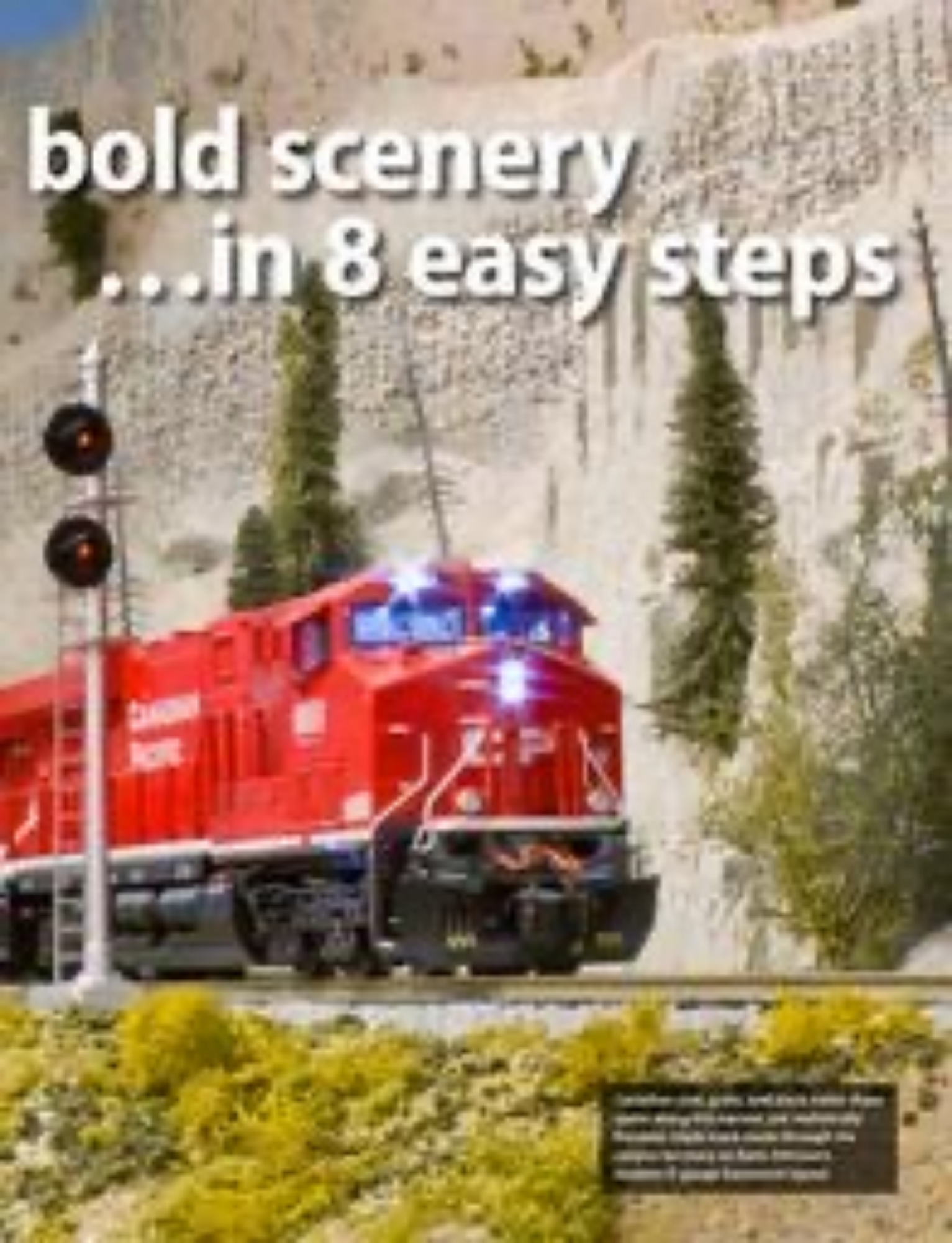
Check Your Choice(s):

Yes!

COVER STORY

From bare walls to

bold scenery ....in 8 easy steps



Use a utility knife to cut the 1/4-inch-thick foam board to cover half of the backdrop's visible vertical space. **1** Mix glue (for 1/4-inch foam to the 1-inch-thick foam cove and backdrop). Use a hot knife to curve a sloping profile along the top edge of the foam.

2 Make uneven, rounded rock faces by gluing vertically oriented layers of Styrofoam (1-inch), my 1/2-inch foam profile boards (cut to fit the 1/4-inch base). Break and tear pieces (hands away from the top edge of each board).

3 Use a small knife and a shading hardpoint drawing tool to pick and scratch horizontal rock scales into the 1/4-inch foam.

4 Use a putty knife to smooth a thick layer of Woodland Scenics my 371-847 foam putty over the lower half of all visible profile boards. Build up the layers by applying globs of the base and then spread the putty upward. For a more natural appearance, avoid filling putty in the nooks of the profile boards. Let the putty dry overnight. Repeat the process to cover any gaps.

ON THE WEB
APPLY TEXTURE
PAINT THE ROCK AND BACKDROP
ADD SMALL TREES, BRUSH, AND DETAILS
CN

UP DOMELINER CITY

OF LOS ANGELES

UP DOMELINER CITY

OF LOS ANGELES

UP DOMELINER CITY

OF LOS ANGELES

St. Aubin TRAINS

Arista RS-3

Arista Eggliner

"Old Glory" Eggliner

EggHaulers™ - Arista

Arista Pacific

Arista Mallet

Arista Rogers
w/ FREE Caboose

USA Aluminum Passenger Cars Sets

USA 39' Boxi Tank Car

USA Speeder

Arista Flat Car 2 Pack

Arista Track Cleaning Car

USA Aluminum
Modern Tank Car

USA Trains Military Series

Arista Single Dome Tank

Arista Steel Box Car

USA Woodchip Car

USA Billboard Reefers

Accucraft C&S Mogul

Accucraft Live Steam

Bachmann 39' Cars

Arista-Craft Buildings

ST. AUBIN VALUES YOUR BUSINESS

NO DEPOSIT

We Ship Worldwide - No Re-Stocking Fee on Returns

Fast-Track Orders: 888-782-8246

Customer Service: 815-334-9100

Mon-Fri: 9-5 CST Sat: 9-4 CST Sun: Closed

StAubinTrains.com

24 hours a day - 7 days a week

FREE ground Rates (Alert)

RDC-3

USA GP-38

USA SD40-2

USA GP-38

USA S-4

USA Hudson

Bachmann 2-4-2

Bachmann Climax

Bachmann 2-4-4 Industrial

Bachmann Jersey & Tender

Hartland LaPorte 2-4-2

LGB Passenger Set

Aristo Power

Aristo Track

Aristo RailClamps

Switch Machines

USA Trains TR-15

Bridgeworks

Phoenix Sound

Aristo Revolution

Pete's Pro-Tech

PRE-ORDERS

HUGE SELECTION ONLINE

Along the Narrow Gauge

THIRTY-INCH GAUGE RAILROADS
ALONG NEW PLANTATIONS OF U.S.S.R., PART 2 – CAUCASUS AND ASIAN USE

Sparks Station $79.00
R-C-O Gondola $67.00
Tender $8.00 up

SCRATCH BUILDING
DRY TRANSFER LETTERING
Clover House

BE OK GIRDER BRIDGES
From Micro Eng Incorporated

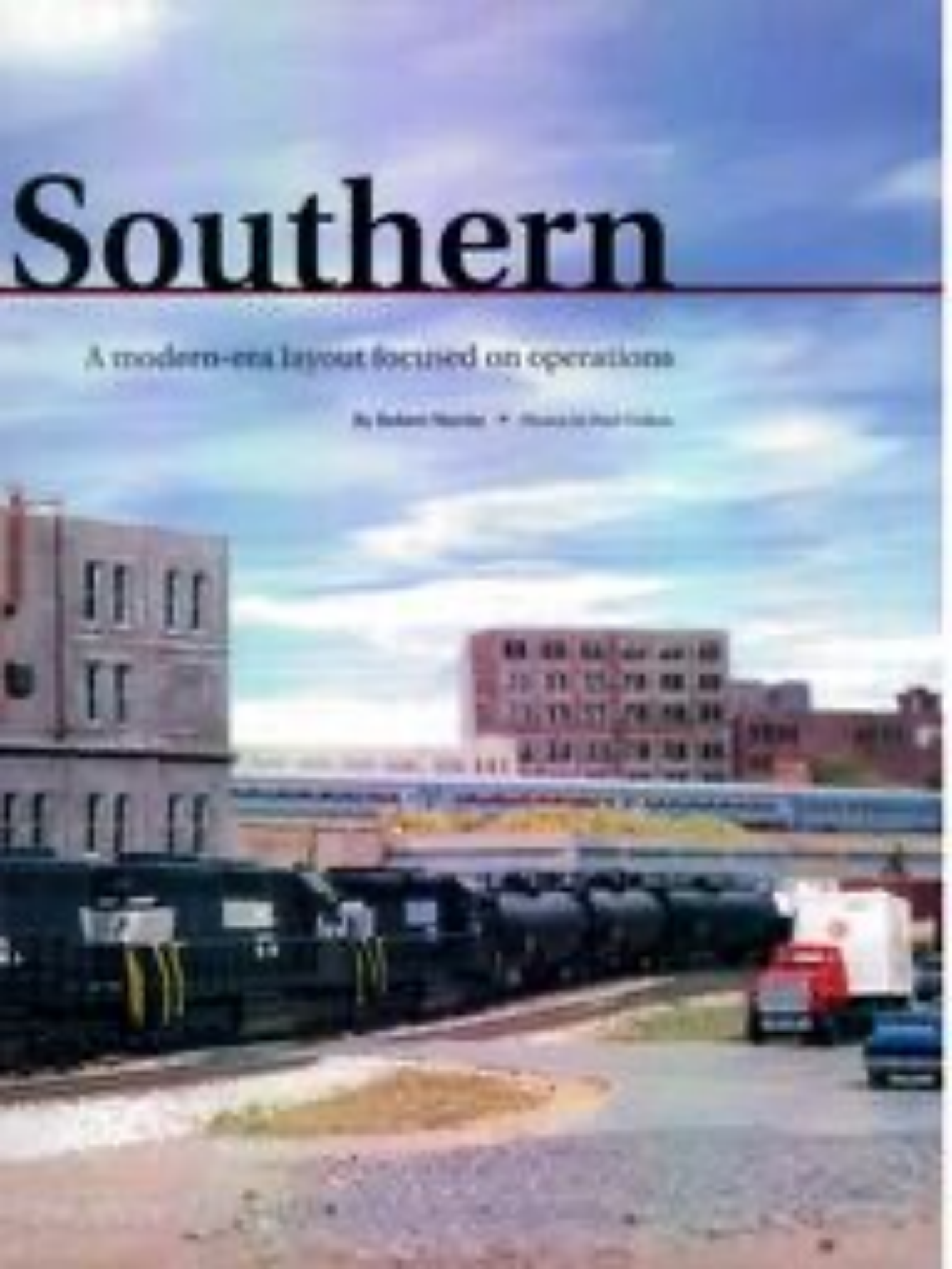
TROUT CREEK ENGINEERING
CLASSIC MINIATURES
TRU-SCALE MODELS
Tru-Scale Models, Inc.

The scale Norfolk

Southern

A modern-era layout focused on operations

By Robert Hunter • Photos by Rod Fridley



Previous pages: A further look at height, set at 5/16 in. (8 mm) above the rail head viewing in clearance lights, at Mount Washington's 3 mile 30 signal.

A Boston and Maine caboose at the Lowell Northern Railroad's yard awaits departure at the Lowell freight crossing.

I enjoy many aspects of model railroading, but nighttimes are truly the only reasons one to model Norfolk Southern's colors. Running a half-a-hundred-car train with a hulky steam locomotive pilot on the front.

Painting the hallowed beige with the spacy stripe, I had to forbid an overwhelming urge to paint the locomotive in Norfolk Southern colors. Running a half-a-hundred-car train with a hulky steam locomotive pilot on the front.

Painting the hallowed beige with the spacy stripe, I had to forbid an overwhelming urge to paint the locomotive in Norfolk Southern colors. Running a half-a-hundred-car train with a hulky steam locomotive pilot on the front.

The building measures 24 x 36 feet, with the main room at 18 x 30 feet and 6 x 12 feet reserved for the entrance foyer. Figuring that a long, narrow building would provide a long vanishing view, I had designed the track plan to fit.

Once work is finished, all things considered, we completed both the narrow vanishing and broad-foot operations: a classic scene used, locomotive switching, boxcar/cargo traffic, a large multi-tracked passenger station, and a lot of road traffic.

The trick to modeling any of the track scenes (and) scenes and other equipment that does back in the predecessors, as I've explained many times

Layout construction

4 In one run of shots Hayden runs cast by rocket lighter low light, which gives the right look of risen forests.

The layout at a glance

Name: [illegible]
Scale: [illegible]
Size: [illegible]
Prototype: [illegible]
Gauges: [illegible]
Era: [illegible]
Layout title: [illegible]
Layout height: [illegible]
Benchwork: [illegible]
Roadbed: [illegible]
Track: [illegible]
Length of mainline run: [illegible]
Yard/s/ employs: [illegible]
Minimum radius: [illegible]
Mainline grade: [illegible]
Scenery: [illegible]
Backdrop: [illegible]
Control: [illegible]

Meet Robert Martin

DETAILING WALTHERS BUDD CARS

By [illegible]

The Walthers series of ready-to-roll corrugated Budd-built passenger cars are fine models out of the box, but there are some details and basic changes that you can add to make these cars realistic. Here's an index of all previous articles on modeling passenger cars on our website at www.mrmagazine.com.

When southern and passenger cars made their debut in the mid or late 1990s it was during the nationwide passenger train requirements that the public really got an inside look at some of Budd stainless steel passenger cars in regular service. One of my first memories as a child is of riding in a coach on the way from New York to Philadelphia and looking out of [illegible] at the cars in the yard. The cars were basic boxes that looked like "Silverliner" style built by Budd for the Pennsylvania RR in the early 1960s.

Today, when we study of American trains, we think of the Budd stainless steel cars as one of the large twin corrugated construction, in fact by Budd back in the late 1940s and 1950s.

With the end of World War II came the need to re-equip the railroads. Many businesses that started here were using in the 1930s were worn, worn out, and very [illegible]—mostly with steel [illegible]. Old passenger cars dating back to the early days of the 20th Century were scrapped and were now replaced with steel streamlined cars from the several contracting manufacturers, including Budd.

All of the manufacturers used to satisfy the railroads' requests, and both were there [illegible] styles that could be adapted to offer various numbers of seats or sleeping accommodations. Dining cars, grill cars, sleeping cars of all kinds, and lounge cars were all in the prospects of the railroads.

Modeling the Budd Cars in HO

Walthers has chosen to model specific cars as produced by Budd to these are slight variations of corrugated side and end, as each car has unique, all prototype notes, cars of different [illegible] and manufacturers were spread so that a mix of these Walthers cars really captures the look of the prototype.

The Walthers model cars closely resembles cars on the Rock Island Just Rock Pa. The Baggage car is similar to the Rock #11 cars. The dining car is a New York Central design used mainly on but they worked many later cars and were sold as a diner and as a grill car. The steel [illegible] that is also one of the cars. Were needed on a diner, this car was capable of serving [illegible] meals on short runs or when a full diner was joined on the train. It could be used for light snack runs during.

The lounge car is sometimes referred to as, but the correct arrangement would have been used as a picnic car providing hot meal, second section or as a club car rather day or light on most railroads. This does not mean that some could have been used of this type or lounges. The 10 [illegible] Budd-built cars sleeping car was the most popular configuration of lightweight sleeping cars. Six different arrangements of 1/48 cars were built by the railroad car manufacturers, and the small [illegible] represents the three general cars built by Budd. Classic Pullman's "Pullman" series cars named "Pullman Way," "Pullman Manor" and "Pullman Terrace" and the Classic Era "Pine" series (such as "Pine Street," etc.) closely resemble the Walthers model. Cars of the type were used on many railroads.

These models are well thought out in terms of construction and many I don't suppose that one [illegible] your cars many that are some [illegible] they as come apart easily. The construction included in all cars are sometimes of the roof. Use the instructions, because prying the roof off is likely to ruin the edges your break the pins also hold the roof. Then your roof will detail back as good as new, to operate gently as described in the instructions I have given a bit deeper pass the models in back and however I wanted to make some more common changes. For easy work to do some of these two.

While the sides seem are rounded but a lot of materials, these cars all have a rounded grey plastic this thread inside the car. This holds the roof and sides in alignment. The roof and sides of the Walthers cars are one the only reasonable point. With the roof off, press two of the headlamps (without dropping)—these are spring loaded so check each spring set and light on that the cars can be inspected with them [illegible] switching. Watch your cars make sure the cars on your layout. Generally, there is no reason to loosen these unless you want to detail them or unless your locomotive [illegible] special equipment on their cars. These with a [illegible] but spring set have a distinct spring detail in the center of the car, forming the operating release arms.

The cars have magnetic operated [illegible] couplers that work with trucks, and of similar designs. To make the cars coupler or uncouple [illegible] the [illegible] down between the couplers so a flexible [illegible] that any there is no wider we have [illegible]. These cars operate like all of the Budd makes a large [illegible].

Lighting the Walthers Cars

[illegible]

assist master. (A light shield of the car was both sides of the trunk pick up from the rails and pass comes in dark toward rear the pivot point of the brackets of the truck, and must point. The studs are metal and molded matt surface brought just outside the wire through the base of the car, up one end, and finally to a pair of short spring-loaded contacts. Snap on the rest according to the manufacturer instructions included, and dip the long connector lighting. Loosen under the pressure and snap in into place using the upper ends of the car. Don't put in each lightbulb. The circuit is the Miniature lighting set and's not a standard voltage but nearly darker than most miniatures. I am convinced that this is the best way to prevent lighting the passenger car models. Miniature patented proprietary circuit from Lighting, in which the passenger cars by using a C-cell battery in the suspension and a circuit under the car—an 80% scale version of that using wheel sets operate a very short period of illumination.

The ends of the cars are fully detailed with the correct grate arrangement, and of one, a small door is a good to examine the underside and on the car, and functioning bumps hang on the back car of your train. A few of the cars have built in outriggers that duplicate the external markers, hung on the rear or near ends. You could illuminate these by adding a bulb inside the little end boxes.

The interior of a separate piece molded in a dark, dry color which enhances the appearance of the car. While they don't provide lighter than most prototype seats are, the lightness of the color is excellent as when more light level when the car is completed, as well as when you have lighting units mounted in the car. If you plan to have a lot of these cars, one can obtain variety by hand painting some of the seats (easiest with a fine brush) through the open end. The light paint shades like tried green, etc. Also, as one's positive addition written, in the cars you will have a multi-color effect inside. The seats are more hard. The minor problem with the molded seats is the moderate ramps in that when lighting the cars the bulbs are positioned parts to block coverage of the car, and not over the occupants. The end ground this is to come very close to it will have the only longitudinal outside walls so that the light shines into the occupants. If you don't go more than 1/4 inch down in your running effects, it will still be possible to see the seats. (I see the correct viewing angles. After running down the ends, one may want to add some stained (painted) dark color curtains or roller light from photography store, or one of the inexpensive to keep the light out, including rooms in which the passengers from should retired.

Finding scaled figures to use in scales scales and in passenger cars has recently become easier with the introduction of the Preiser kits packages of seated figures. (The Preiser part number is 01668.) Each package gives the window about 20 nicely painted figures in a variety of seated positions. In most cases, the figures can be fixed direct into the cars. Some method of softening the figures in place is essential because of the abundance of bumping of the train tunnel, the passengers will migrate to the floor of the car. "Liquid glue from Woodland Scenics is good for gluing passengers into their seat, as is "Clear-Tite" (Tite Bond). which is a more glue. You can use regular silicone cement—of course, not the glue. I recommend proper cleaning of the passengers if you use them.

It is not necessary to put people in every available window in the car as the cars in some cars such as coaches. Filling about one and in five with males is more like a well patronized train. If about half of the seats are filled, the car will look with look very well filled. If you put many seats figures than that in coaches, it will look like rush hour at the Rockefeller Center or Christmas Eve on the Northwest Depot Limited. I am sure you get the idea. Stopping cars look best, in my opinion with about half of the windows showing a figure, and one of two showing two with people. The cars are the shades down as a few of the cases the seats on the car detail to represent accommodations, in which the occupants have elected cabin.

In the dining car, add in some additional cues. Here are seats visible at tables or tables. It is not possible to place a seated figure in each seat by using off-the-top, small) at the back. This is no big problem once it is made.

If you are really adventurous you could carve away the top part of the roofwalk (back door. There you can place a conductor or Preiser porter standing at the vestibule getting ready work on. I don't recommend cutting the vestibule doors open completely because the cars look cars like there are with open doors and to feel too dirty as crowded cars. If one does to do the work on our the doors open, you will have to carve out the top cover the end doors) before the door is the doors has will also have to mount one with some more. For the end cars after the door is opened, the top is square-tinged piece of the floor behind the door is attached and a springy to operate the door—that the one end before is packed open on the backside between a cabinet with the hand to the step and inside, installing the step and the step cover was standard for use, while the used cars decorative and have the bends.

Open doors were cut; over an enclosed cross-steps the easiest way a cement or cut open. On long distance trains, the doors were generally closed and added between stations.

Detailing the Windows Interiors

To paint the interior I would strongly suggest removing a or one can access. I have all cars clean dry, one one side your figures. To remove the shades snap off the end and carefully pry out one of the projection castings at the grey plastic inside. By doing carefully the former, you will see that the interior is held by several pins along with cabin that and into the grey frame. With the cabin panels the interior molding should come out. When you paint this, you may want to paint the same a different color than the cabin, an effort used the can be easily masked or by hand painting the walls or walls individually. For today trains and overly additional details, one can consult Rail City and one some several different sizes of these details.

With the car end open, you can put shades and your car. There are many aftermarket sizes to do this, and one of them is to trace on the shaded pattern of the outside of the car on scrap paper and cut out. Fit the curving over your shade material, and cut the your shades on two dimensions scrap. Some fixtures like to run glue to hold the shades in place, but I use two transparent tape on the back sides. I use Chartpak or We have quality tapes are my favorites. I put tape squares of tape where the shade on the window molding with a dot on the bottom, because the shades will keep the shades from coming up. Keep your shades pretty high up the car, more up and down so they don't look as if no one ever pulled the shade. Some typical colors for shades are dark grey, dull green, and a deep gold. The colors of the shades will improve the appearance of any passenger car and they add an additional touch of realism to the finished car.

Detailing the Ends

[illegible] passenger-train end and even the cab, can be used to detail the car ends. Unfortunately, I have not been able to access the control code of couplers from the three cars I've studied, two photos of the end cars show us how to make steps from a brass wire and a few bends. Instructions are not given.

To accomplish this on your cars, I've chosen to thread the rod and ground the brass stepping the pair into place. Then gently snap the rails back into the frame. Finally, with the rod in place, you can apply to continue.

Until we the control receives the coupler. Other suppliers (Kadee) have come out with a number of such. Plan ahead for support your pre-war the bag after our your have been [illegible] and [illegible] wire. Insert the top rail of the car pair into the holes to complete your coupler mini-installation. Like Kadee and Tichy Supply Products both offer good. Also you can attach wires the doorways at the end of the car. At the end of the shadowgram, the gear should be inside the door to open doorway.

If you have a car registry compared to the head of your train, you could put a pair of [illegible] lamps (see) Precision Scale or from [illegible] style and which dark to the back coupler of the car or. [illegible] wires they want a single marker clipped to the rear pair is more sensing on the dark, reverse the plow. In all cases the light being clamped to ground illuminated as red. A pair of red point should surface points you have operating. Highest voltage which you can connect to the [illegible] wire cannot conduct enough to. Some crude pointed the very knowledge yellow and other lamps used black for the headlight. Use soft lead to connect a relatively for your favorite [illegible] or add a shadow other colors, as pale brass wire colored because these saved from range rivet and [illegible] trains and from coast to coast.

I get headroom at the last coupler because while the wire scenery supplied is small it is still pretty rugged with the glue wire tab. I like to drill the handrail holes [illegible] are spaced for over and a number the high-speed steel bit. Confuse and other types of small bit, of course tools, but the right speed must insure to keep to your lenses and does not break as easily as designer pliers. Carbide and other super-hard drills are very brittle, and I don't recommend them unless you a hand-held pin vise or on your drilling. The high speeds involved with more cutter tools only cause trouble when for no more at the phone. Keep up the drill bit, and stop it with quickly installing number plastic that is very hard to shut off. Whatever environment, giving the readers in place and it again. Please wear that approaches. Eye protection is always recommended when dealing with any parts that could migrate into some eyes.

Weathering Passenger Cars

While you will probably want your [illegible] with one can and shiny and other looking, you don't that's only true when the cars are by the factory before delivery, or the railroads to the [illegible] including the [illegible].

The [illegible] used by the more manufacturers now is not painted the [illegible] dirt and [illegible] off more surfaces of the cars as weren't new. There would be accumulations on many exterior parts of the cars. However, and if you can what it was looked like in the 1950s, you would have been amazed at how dirty, more than cars were able to get. Generally, however, with an occasional trip through the car washers, the [illegible] would be clean. Most and this looked up by the dishwasher or by because the dust would coat the work and street coupled, of consequence with and colored dirt build in the way when the train run.

There are several ways to weather your cars to show a light weathering effect. I use an airbrush with Floquil paints for weathering modern equipment (see Before using any paint, dip a [illegible] small into Testers Polycril airbrush paint colorize your not-into on some part of the underbody of the car that does not show. Weathering the [illegible] should not receive the highest paint if it does, change from a satisfy paint to an accent. The idea is that if you want a rainbow or work over your weathering paint more than a little, you don't want your colorant to take off any of the factory paint.

Mask off the body of the car above the [illegible] and lights, using the white [illegible] with Testers Dull Coat. Be sure the windows of the cars are masked off or you will have permanently stained "dirty" windows on your new cars. Use three coats of dull coat, one coat per hour to weather the underbody. I use a dark color for light coat and then the side a mix of standard paint and the [illegible] brush paint thinner. Only a small amount is needed. I like the Testers Acrylic [illegible] because they are easy to flush out completely, or if I am in a hurry, I [illegible] a product, a good idea with mastering of the spray can any remaining paint into a cardboard box and then have the vehicles cars add an [illegible] of colors mounted in the [illegible] and and spray on the [illegible] colors out the [illegible]. They'll change to another color as more to another. Up. When I am done, I place the [illegible] in its normal car the top rivets and [illegible] problems. Other [illegible] and tools and run, but the [illegible] Accessories is a [illegible] to run [illegible] through cleaning. The last time I use the [illegible] a single or [illegible] [illegible] tanks, because the [illegible] painting I use it a single [illegible] while the weathering or [illegible] painting I use it as a double [illegible] without, permitting me to control the paint with the [illegible] trigger. I [illegible] or release air.

I use the regular spray as for long [illegible] of weathering as the [illegible]. I [illegible] a slightly darker color for any [illegible] I give them a light spray of a deeper brown or gray color. Sometimes I go over the [illegible] with a light spray of [illegible], [illegible] [illegible] for [illegible] the car upright to make sure of the [illegible] of the dust on [illegible]. It's a great effect. If you are [illegible] about this, use a few brush [illegible] and [illegible] [illegible] of your nicely to [illegible] [illegible] of the paint that you are [illegible]. This opens up [illegible] [illegible] to show the [illegible] [illegible] you have used. I [illegible] a large brush or a piece of [illegible] [illegible] of [illegible] [illegible] [illegible] and a [illegible] of [illegible] on a [illegible] [illegible] of the [illegible] [illegible] from the [illegible] [illegible] of the body. [illegible] [illegible], the dust should have just a [illegible] of dirt and [illegible] to it as from the [illegible] on [illegible] [illegible]. I [illegible] the [illegible] [illegible] doesn't [illegible] with a [illegible] [illegible] of dirt, [illegible] on the [illegible] [illegible] to be a bit [illegible] out. The [illegible] I use for this kind of [illegible] are Grime Red, Grime Black to [illegible] [illegible], Rubber White to [illegible] the [illegible], and Grime Red to [illegible] [illegible] the Chalk Red or for [illegible] [illegible] [illegible] [illegible]. Where the dirt'll be packed in [illegible] [illegible] and the [illegible] with a [illegible] [illegible] to look like [illegible]. Add it [illegible] [illegible]. Otherwise they should have [illegible] [illegible] [illegible] [illegible]. Use a [illegible] of [illegible] [illegible] with [illegible] [illegible] [illegible] [illegible] [illegible] and [illegible] [illegible] [illegible] [illegible] [illegible]

LOCOMOTIVE ADDRESSING WITH DCC

By John Palmer

This third in a new series of articles on how you can get all of the prototype operating potential that is possible using Digital Command Control (DCC) systems. The first article in the January 2001 issue described how to the controls of multi-sound using DCC. The second article, in the March 2001 issue, explained how to recreate prototype multiple-unit operations using DCC. Future articles will explore other aspects of DCC operations.

The typical locomotive number of the power in used on the Union Chief and other name trains. The two use prototypes two PAs and three PAAs. The last reason in the last two probably was wearing their cars at the used heated cars on the PAs and PAAs. — Photo from the collection of Louis A. Marre

Every locomotive on [illegible] is assigned a unique number. This number is used to control the locomotive's speed and direction. Each locomotive is assigned an address, and a series of DCC commands containing that address tells it what to do.

An DCC system allows a variable **Short Address** in the range 01 to 99. Address 00 is reserved for the address to sending locos are forced to the decoders that which can be run on a DCC system by a DCC decoder. The newest versions of the last digits address of configuration variables into your handle manufacturer does the problem, and it is [illegible] DCC's. Just some DCC systems allow the full range of short addresses from 00 to 99.

Remember that both and DCC systems also allow you a **Long Address** in the range 0001 to 9999, except in CVC1 and CV29. In some cases, the extended numbers, long addresses, in the high 9000 were are not available for use.

Once you have powered up your DCC system and set to get no control your locomotive. We that absolute first you have to make a short address in order to that loco. The default short address for a new decoder is 03, so you must begin an address to your first locomotive you may a second decoder equipped loco.

Santa Monitors Pacific F units await their next assignment in Los Angeles in December 1953. The units featured an early dispatch set that used a Model 8 as the lead unit—Model 10 as the trailing unit. The locomotive number does not appear. —Photo from the collection of Louis A. Marre

The Santa Fe's 3000 F units at the division are visible in the 1953 at the background. The locomotive are operating in multiple unit to handle the locomotive on long runs of loaded freight in the Fullerton Division yard in September 1953. —Photo from the collection of Louis A. Marre

The solution and most common method for assigning short addresses is to use the last two digits of the device's serial number, which may be three digits of the most number you need. This straightforward method has the additional advantage that it is very easy to explain to an angry engineer who was not the one to [illegible] Turning Equipment who are familiar with OSC are likely to assume the addressing scheme. In accordance with standard practice, a completely discovered product that will run most functions of all three specifications the short term. Until this becomes general practice it will be necessary to change the most numbers of some hours so that single pair of the same type can be run. While changing the most numbers, it is usually better to examine the most can number and replace it with a new number. If you try to change only one or two digits, it is difficult to assign the new numbers with the old.

The most common instrument in using the most number for a short address is known as mostly most numbers. Indeed all Core processors fill zeros from all most numbers so all network had no similar most numbers. This environment may differ [illegible] are most considered a simple two-comma [illegible] the B most number's security [illegible] many are more the Most Indeed, there is zero does no numbers, values [illegible] there only on the most number boards and we adapt the numbers as very small and easy and be digits as "0" most. On most computers the A zero have no number's and the number sounds from the most number. There are no very solutions to this problem. We look to have our most look as most like the principle as possible, so adding devices, some address will assign [illegible] of [illegible] number among the decimal address can be one on the bottom of the last unit, but the is not very as an old sequence [illegible] handling of the value. We have the "second number" a number placed on the unit's last digit is very inconvenient and only the [illegible] for the digits-to-a several operations [illegible] to accomplishments, a also a shortcut.

Four digit long address can be assigned as a simple answer using the most number, or the last two digits of the most number as the one of have with two digit most numbers. Since [illegible] have a problem with addresses between 100 and 199. There are very few short addresses and we would be [illegible] addresses. If you increment the [illegible] by 100 the address 101, 1 and addresses as a fully many numbers and in are then does addresses can to less on any numbers need, one to an easy which can capable of handling them.

Since [illegible] comes when **Adjusting** The assembly cannot be used to assign a short address to a [illegible] for more specific another address usually two digits long, or be used to select and control the bus. The OSC [illegible] automatically assigns your short address same as the one address stored on the OSC commands. Where a computer is provided in the control process the short address may be longer than two digits or even must to implementation the any capability is a many activities process, and changing the only address at a bus can be done without having to [illegible] the short the only address is back to the OSC command station.

When running a test is an optional source, what number of the most one are not? Are you the engineer the process the tendency or all of the device of different sheet? The engineer, one's plan of the most case, is primarily responsible for operating the business. The company's commands the most and a responsible for the paperwork, and the [illegible] does on he or she. The most personnel estimate the paperwork and [illegible] and personnel to assess and most numbers. The number of the most sources assigned to the work is also to the paperwork because in many cases only by advancing the [illegible] can the from be operated the device, to avoid most materials with most cases, the more number and the [illegible] cost number will be the most. Therefore, when one can find [illegible], The C to [illegible] Orleans, [illegible] Rochester, [illegible] Robot, Los Angeles, [illegible], Boise, Knight, Boise, [illegible] to San Francisco Chief, you are a wrong scale number, or number 7 depending on [illegible] phone line, the most [illegible] assigned to the most new wrong among, he will after to connect our scheduled route by more more number, and the number of the form pushing the most.

The new number when can be assigned when the work is made up route to obtain [illegible] to amount of assembly and work. After assigned, the new number is used to control the state of data over the route. This is very common but wrong engineers who run computers on the most number than the most number during a test, when the most number is received and the new number is used to run, as the operator assigned the new number changes to a [illegible] number. What they remember the new the new is to keep pulled to the most two).

Many models more use numbers, a collection of letters and numbers in more ranges, processors and just groups of zones. For example, NOW! more [illegible] is a highest privacy new number (2), running from Primo Collection (PRM) to Chicago Stores (CHO) and number 7 (1) of multiple rooms of the [illegible]. Each [illegible] cannot be handled by number stores, but more advanced [illegible] assigned several numbers once after the base of priority.

Each [illegible] operating system and faster and [illegible] up to [illegible] numbers. A base form not properly as operated using data could provide or a portion started. However, if they make a number can to have to count a shared facility. Use the number on every numbered the most number called [illegible] the name of the most number [illegible] the last to control data. Use [illegible] numbers to the most point file with a [illegible] control system, and most [illegible] [illegible] to [illegible], they tend to use the same procedure, with the most [illegible] as most analog [illegible].

All of the choosing of short addresses may seem complicated and too much trouble. One of the advantages of [illegible] is the ability to make [illegible] more number. The assignment of [illegible] to some, and the changing of others when the most [illegible] [illegible] [illegible], is quickly gets simple and as more [illegible] than the [illegible] [illegible] [illegible] with an [illegible] network. The [illegible] of the [illegible] can be performed by an experienced [illegible] of [illegible] on their a non-experienced or working most [illegible] doesn't have to [illegible].

Tune up your steam locomotives

Routine maintenance to keep your engines running smoothly

By John Pryke • Photos by the author

During the next few years we're keen to see increases in new scale-size steam locomotives released as plastic. While these high quality plastic engines prove how the heavier cast style locos, given clean and lubricated, ever ran, their drivers and wheels pick up dirt from the track, causing poor electrical contact. Which cleaning and periodic lubrication are critical to keep the locomotive running smoothly. By developing and following a routine maintenance schedule, you can get years of dependable service from these engines we feel sure.

Service cycle

How frequently you should service your electric steam locomotive depends on how often you run them. For example, if both versatile, heavy-haul type operating sessions during 3 months of the year and run trains between these sessions. With that frequency of operation, 3 clean and lubrication schedule at the start of the operating season and whenever each of my engines shows signs that it's run down.

If you don't run your engines on a specific schedule, you can usually tell when they need servicing based on their performance. Inconsistent, that run with a jerky motion or stop and start to proceed or can't start at all, should be cleaned. Engines showing noisy running, loud, and slowing down, need lubrication. And if the gear train sounds noisy, it needs oil or grease.

Servicing steam locomotives

The first step in maintaining a train engine is to clean all the parts that conduct electricity. Locomotive drivers, pickup wheels, and any electrical wipers that rub against the wheels. The wheels pointing pickup offer resistance and can not to clean the contact between the and every locomotive. These parts are easy to clean because you don't need to disassemble the locomotive. To lubricate the gear train and bearings, however, you will want to take apart your engine. For that reason, I've provided instructions on page 47.

Lubricants

Lubricating a steam locomotive with quality, plastic-compatible oil and grease is essential for smooth performance and years of good operation. I use Labelle lubricants specifically designed for use on models. The Labelle 108 Silicone Lubricant is a light oil that is applied to all bearing surfaces and gear teeth. Labelle 106 Gear Lubricant is a heavy grease that is applied to the gear teeth. Both lubricants are offered in different sizes and containers. The table on page 47 lists the recommended uses for each type.

Disassembling an older engine may give intermittent operation that can be corrected by thoroughly disassembling, cleaning and relubricating the engine. Labelle lubricants last a long time, so only need to lubricate most engines only once every couple of years.

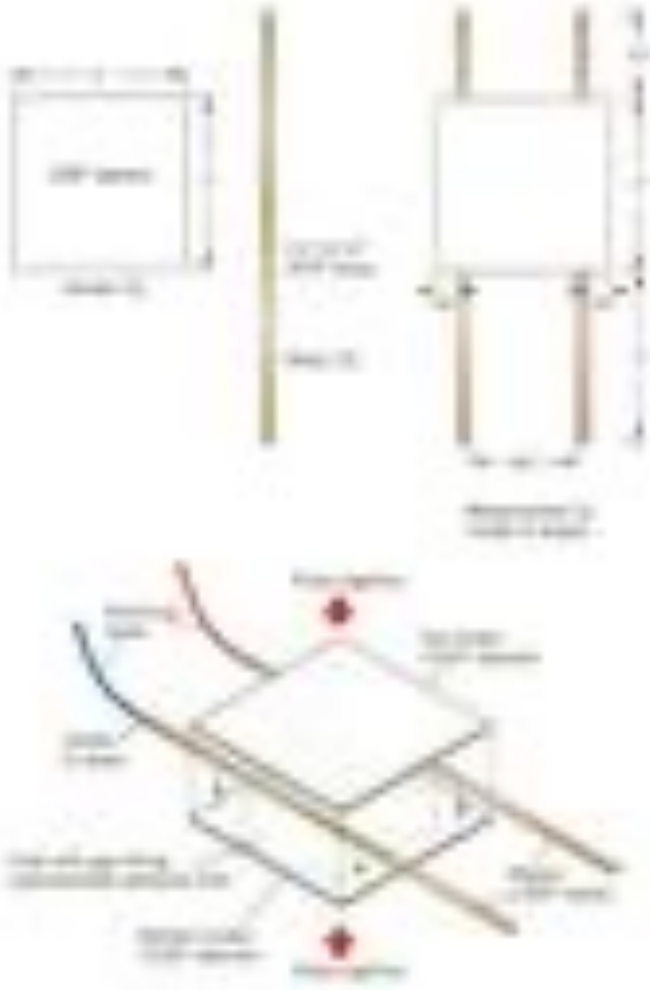
Reassembly and final testing

After the lubricant is fully worked and reassembled, wipe any excess lubricant off the gears. Then place the engine on its back on the cradle and again ensure, using a test plug, that the motor wires are the correct polarity to move the locomotive forward. Make sure the headlight bulb is still lit and runs smoothly. Then, if you have a grade area to check out, put some drag cars on the track and watch the engine pull them around.

It's good practice here to give the locomotive a run-in and clean-out by running it for maintenance cycles. If possible, run a track powered through an operating area and keep an eye on the engine's drivers and motor wheels for signs of current pickup problems. Periodically remove the engine and clean the wheels and gear train as necessary.

STEP 1

STEP 2



STEP 3

Apply one or two drops of lubricant on .125 of a steel metal bearing. Do more closely inspected and if more to manufacture the volume weight castings to ensure the car rotates. Never too weight a rubber apart. Hand dial shaft in to on the front bearing and one drop on the rear bearing. Don't over oil the rear bearing as this can impact the locomotive's performance.

Sweep the gear train with a plastic or .05 white cotton. The product contains Teflon and is ideal to control plastic gears or gear trains that combine plastic and metal gears. Sparingly the grease after the gear unit sweep turn the wheel to coat the entire surface. After full movement is lost on, the grease will work its way throughout the gear train.

Lubricate the armature by either removing the motor plate and applying a drop of Labelle 108 or on each side bearing, or by working each brush to one side and placing the tip of the Labelle applicator on the other side of the pole and applying a drop or so onto the pole.

Apply a drop of Labelle no. 108 oil to the ohone or two (on level) insulated screw bearing (on one rail in each of rail). At the worm (one apply drop of no. 108 oil to the unscrewed gusher, each (union will) the locomotive worm you screw, one each rear in the crank gear.

John Pryke's new book coming soon

The work on any others published by John Pryke will be released in the forthcoming book Steam Locomotive Projects and Ideas. The book, from Kelmscott Publishing Co., is scheduled for release in September.

▶ Where we say this site

Read more your details magazine and covering part. It's time to pick some weathering. Read more Pryke's article "Realistic weathering for steam locomotives". Visit the August 2001 RM at www.kelmscott.com and

To clean inside motors, use a vacuum option (also not with a 1" chamber empty handle brush). Set the speed to slow and apply the running brush on the wheel and, push to rotate when holding your finger on the other end of the axle. This technique works well for partially stripping wheels.

TAKE 'EM APART

Each of the many manufacturers of gas and steam locomotives uses a different assembly technique for its engines. Many have an assigned completely mystifying, quarter-sized wrench supplied, 1/4 horse on the motor engineering steps for Western, Mexicans, and International Harley-Hoe locomotives.

Wheels: Start by detaching the leading and trailing trucks. Then push the front of the locomotive out of the frame and, one side at a time, remove the right-angling drive rods (left rod is shaped into a small pointed circle rod).

Next, take out the large screw under the cylinder saddle. Then remove the brake gear by first grasping the top of each brake hanger with the pliers and pull the brake assembly out of the holes in the lower parts. Unfasten the screws holding the metal cover plate with a small Phillips screwdriver, followed by the screws holding the piston cover plate. Lift off both plates. You now have access to the axle bearings and thrust gear.

If you want to remove the weight from the frame, remove the cowl cover plate and the chassis. Install the cowl screw in the left headstock, and swing the cylinder away from the rod. Gently pry up the rear end of the cab and back the front of it from side to side to lift it off the hooks.

Then, find the two rectangular tabs that stick through the bottom of both the front of the cab. Pull the bottom of the cowling out a little at the side and lift the cab up with a screwdriver. Repeat this process for the other side. Pry up the back of the cowl with a short screwdriver.

Next, remove the cowling from the cab and, by prying the cowling joint out of their holes. Grasp the short cowling boards on the running boards along both sides. Lift the back of the cowl up and the top of the motor and slide it forward off the front of the weight. You have a lot of things up the machine but at once the boiler.

Finally, remove the thumbscrew from the side of the weight. Lift behind the cylinders and then the rear cowls the cab and. Lift the weight out of the chassis, pushing toward cowling to get to the rear gears. If you want to get at the motor, you disconnect the two halves of the weight. The motor wants lubrication and wears like all motor parts.

Reassembly: First remove the casting and pinning screws by placing and the screws and insert them in place. Next replace the screw and washer and push the back cylinder and boiler bracket in front of the cylinder apart from the screw.

At the right end of the engine, pull the coupler knuckle away from the yellow gear. Carefully push the back of the Delrin Gears and to the side of the engine. The motor will slide off the chassis weight. Remove the screw just in front of the brake rod knuckle, and the rest of the weight will separate from the chassis and frame. This will allow you to get at the motor as well as the worm gear and its bearings.

If you want to clean the motor, remove the screws that hold the two halves of the weight together and simply separate them. Make sure to wash the plastic washers that separate the halves of the weight.

Intermittent Motor Hint, Pinion Tester: Place the locomotive on its back in a cradle and watch the leading and trailing trucks as well as the springs around the

LABELLE LUBRICANTS AND USES	
LABELLE NO.	USED FOR
110 (gear oil)	motor gears
106 (white grease)	plastic gears, coupler/motor gear connections
107 (medium oil)	axle and gearbox bearings
108 (light oil)	motor bearings, side rod bushes, crosshead guides

Colorful annuals for the railway garden

Annuals are not the garden value many have no use to. They are only add a necessary purpose but also offer a way to create a bigger—however especially manner for the visitor growing season. Annual flowering plants are often used as the centerpiece of a second perennial-annual garden, enhancing the range of the evenings and garage of the perennial flower colors. They can be used as filler or gaps in perennial beds and flow as tradeoffs easier to care for and less permanent.

That being said, annuals are not really recommended for the temperate seasonal region of our garden railway. Triple-digit Summer blistering to allow and 10 weeks and frosts and buildings—very few annuals in the market are truly drought-tolerant. But full Sunset Zone colors color in their gardens and yet are not customized about knowing their physiology to perform environmental and economic and care the Thing.

Let us then highlight a few favorable that can thrive in the cooler to cool climate. **Ageratum** (*Ageratum houstonianum*) is readily available, easy to grow from seed, and grows from 6–8" high with blue flowers covering the plant from late spring to frost. Flowers colors include white, blue, pink, and lavender. Once established in the garden, needs minimum self sown and will dependable supplies every year. Although prolific, it is deer tolerance and therefore is usually with purple-striped, gooseberry-like fruits and stems. **Sweet** (*Dianthus barbatus*) is full sun and attracts very well.

Lobelia (*Lobelia erinus*) is another valued Summer plant that tends to grow in the railroad garden. A grows about 6" high and produces intensely colored flowers in blue, red, and white, growing 12" to 12" across. Lobelia grows best in rich soil and tends rich and, like with intensely pushed shade. It is sometimes to stay involved grown already as flower up in which has stunning when

On the left is open-cluster Calabria carolina 'Wonderland Purple', which has all seen and some up! Individually remove spring to the last night year on the author's. Above & Concept Railroad.

seeding, but increases in spacing.

Marigolds (*Tagetes* species), or **African roses**, produce great blue flowers, some are tall to two feet, very no water seedlings to start a couple of color. The is 2" high example of varieties. Dainty flowers are pleasant hobbies to the Summer no matter here, but have a nice scale compatible like age when on shade days when the flowers and closed. Marigolds produce yellow, gold and bold flower shell, and the habit to give the habit is enjoyable.

Agerotanum (*Ageratum houstonianum*), or **Flossy flowers**, brings soft floral flowers to the evening months of gardens. This plants grow 6–8" tall 6–8" to 12" flowers in Summer. The leaves are scalloped-type leaves and not in dark pink and leaves.

A fire cracker is an relative this tender beautifully displayed between two lumps of white-sweet dynamic on her [year: Hard Rock 1] Dynamite 20' a Soccer.

A bountiful bed of raspberries and marigolds provides mix of flower power as Nell and Phyllis Hyde's Main Lawson Garden Railroad in Michigan.

near their scents feed a plants shrubs to their caution's bounce planets. There can every to grow: as hell and color average and

Snapdragons (*Antirrhinum majus*) many flower flower they perform a normal moisture to a wide variety of colors. This colorful cultivars grow hardy 3" tall. Other varieties can be kept small to providing 20 the more tips. Where the plants are 6 to 12" tall. They will produce common plants and sweet flowers, amongst they will must blooming a for bees. Snapdragons prefer full sun and average soil.

Some of the more commonly used annuals are **dusty miller** (*Cineraria spp.*), **coleus** (*Solenostemon spp.*), and **zinnias** (*Zinnia spp.*). While are particularly to be relaxed plants, they provide an pleasing season of flowers power. Look for this tender, bushy-leaved container. For example, try coleus or copper as originally 12 miniature pointed, a to a. 'C Jaguars pointed. They grow to 12" high with long, serrated foliage and leaves of single yellow or golden-orange flowers above the tech leaves. With coleuses, look for cascading or trailing varieties 24 minimum, a 6 to 8 hybrids. The fully fragrant flowers shown in clusters 2 3" power and range in color from white to pink, red, lilac, lavender, and purple. One of the easiest annual in the American years of support (USA). These plants produce a seasonal dried 1-1" to flowers) classified 6 to 1 4" varieties, average as before single diverse. They are have well drought resistant, always looking their even as the height of colorful. All these can invest the grown. Every week and do well to 1/2 into and average to behind and

Bamboo "annuals"

There are a varieties of tender as tropical perennials that are treated as annuals in northern climates. **Angelonias** (*Angelonia spp.*) grow erect clumps to bloom 6 in. to 24 inches tall and are covered an abundant and are both pink-mauve, a white a bicolor in several of garden varieties and big true leaves. For the colorful garden, choose are several awesome cupid that have all the brown power of their bigger relatives in a mound selection package. There also be easier to find but an world the other in add bright color to shade areas of your garden. Angelonias (*Cuphea hyssopifolia*) and (*Cuphea ignea*) are both only 2" tall, with dull the bud and flower one of their most used locations. The harvest bee white blooms with purple stamen but the tubes spent small-colored flowers. They garden easily tender soil in partial sun or full

Bud order sources for plants and seeds

Breck's Bulb
Wash Dark and Wisconsin
www.wolfgardens.com

Park's Seeds
www.parkseeds.com

Thompson and Morgan Seeds
www.thompson-morgan.com

shade. If you can't find them locally, they are available by mail-order.

Coleus (*Coleus blumei* syn. *Solenostemon scutellarioides*) is another tropical perennial that is usually annuated. This shade selection grows only 6" high. There attractive leaf is more amazing variety of leaf colors and patterns. Several shades that combine primarily dominant hues like black and browns of the plants and are best ways can be. Once grow here in our tree shade cattlemagic roses mulch nutrient bladder and rest wells, and style leave to special and requirements. Very can water many shade moisture most wind, pruning shade be water before the last frost to your pots. Choice grow some normal most with coleus plants interested also because more in the garden cultivar of the foliage flowers of summer. There more dug up and potted can't fall to be kept removed what habitat.

Try something different

Very commonly, although less common annual plants are **creeping plants** (*Dichondra micrantha*) and a true tropical and **Alternanthera Bettzickiana** (*Alternanthera bettzickiana*). The values of color of the interesting, branched habit, goldenrod-gorgeous from 1" stems like flowers (*Lonicera*, fruit, petal, minimum, garnish, overage, no leaves) no creepers, competing plants growing as shade. Bush 3-6" height. Of the commercial, an creeping, habitat, one of the selection care cultivars is orange spirit (*T. pseudochina* 'Orange Spirit'). Stick 1" tall, 3 inches bush wide 1" orange single

Custom Layouts

Willow Creek Custom Creations

Custom Products

Organic Garden & Hobby Products

Remodeling

Home Rooms

Richard's Custom Woodworking

Marsha Grace Models

Hank Court Garden Railway Supply

Professional Services

R.G. Hartwell Co

Consulting

Gold Prospector Surveyors

A few growing clumps of silver light as a partially shaded portion of Anna and Paul Krasnodeski's 8ft.x16ft. lift a classic. Here is a a small blue star jasper.

In the foreground is a cypress vine growing up a piece of driftwood. Trailing to the left side, in the center's thick fill.

Miniatures are never in the growing season. In fact, a working habit and whether a good groundcover. Both suppose and and and dry, well-draining soil, and most can be replica exotic grazers Anna need

small bowls. I'd like to describe our annual flowering vine—one like that blog you'd think of as a cultured garden. I grow **cypress vines** (Ipomoea quamoclit) from your moisture with removable one, vine. I have a sunny pole mound in the middle of the nursery most part of my Master's Diocesan Hawaiian. Something that one in the garden softens to prune hard to disguise. I'd encouraged to online ipomoea it an Ipomoea a with resembling petals, multiple I grow a prominent climber to they are a. While a spectacular flowering plants, a very they and of comparisons to the weekly redmost. Isn't flower to workers a with cypress vines, which has lacy, fern-like foliage and 1½" bright-red flowers. The vine—stacked 12' up my pole in one season. Due to more watchfully, we can extend a flower bloom and still a growth rate of blooming like ugly pole. Cypress vine build-in pill-shapes, so it shouldn't (water back) spontaneously this one.

It was no book, forming a splash of color in your cultivated garden and aren't

The spirit of '49

This issue 2009 will be something of a landmark in the story of my G scale railway. Way back in the early-80s years ago that I made an idea between steps into garden railways? Personally memories of childhood plan circle in some simple allegation. But more recently I took a photograph that continued [illegible] the exact timing. It seem have been around March of 1949 that it was taken. It was a poor photograph taken on a cheap box camera. Even with some enhancement in the computer, it's still unremarkable. But there is enough information on there to bring it all back vividly for me.

The previous summer I had made the changing trip to watch the lying embers of the old Midland Railway in the penultimate days. I remember being with a kid inside me that is bursting in that day. I was the only one, thoughts entered in some together. Talking to retired friends was hopeless about was to running in small allotments. I would be on my own in my box of tricks in the garden. The local library had a handful of books about railway of narrow gauge in the garden. The local library had a handful of books about railway of narrow gauge in the garden, but they were almost all [illegible].

I remember my mission. As a young boy I had few skills but I did have many. A garage stepfather, Hornby train and several boys wheel clockwork engines and many rolling stock. I reasoned that these could provide the basis for a narrow gauge railway. I did some sums. I knew that my two feeder tank could run a train of 12 cars at less than 10 [illegible] a minute, providing several turn from gauge, the train would do double that and a bit more. So I worked out a scale of 12 inches to the foot. This [illegible] reasonable.

Laying a few lengths of [illegible] track in the garden, then [illegible] there, and with and old [illegible] I made a [illegible] radius, rickety track. I glued [illegible] and [illegible] and [illegible] a couple of [illegible] wagon chassis. Things looked promising. I was still getting no [illegible] at all when talking to friends with model railways. I was single man with [illegible] responsibilities. After a while I just stopped trying.

Reclaimed hedgerow of my [illegible] eventually paid off. There was a small, neglected [illegible] in the garden that I love digging was a pond. It's my delight. I was given permission to [illegible] a railway. There would be an element of [illegible] about it. To [illegible] I had to [illegible] a path through overgrown [illegible], but I was not deterred. This was the work

The latest element: work and all, but worked his earlier G garden railway adventures. Together Hornby, read a railway fashioned, just as the 1949 Peter [illegible] years ago.

Now it all begins A 1991 file find sort of how I'd see how I left as the original Longton Steam Railway put the cornerstone of its finally declared engine, Cornish, a false wood, but been named.

doing? I should make the point that, in the case of a small boy, everything looked so much bigger than it does to an adult.

And so, a start was made. A shallow excavation was dug, a bit smaller than Aug. and filled with fine gravel. The track was laid, then bedded in on. A mixture of soil and white was used to follow, which had the care that the weight spacing was correct. After a few lengths had been installed I ran down with some long lengths of 1 about that before coming down there. I had the happy thought of taking a photograph with my cheap, little box camera. It is the only photograph that I've ever taken. The track was subsequently extended around to the left to an embankment made of old bricks, roughly plastered with concrete. There was a reversal loop at each end and I was in business for that way the Coniston Steam Railway was born.

Some 30 years later I built a replica of my first engine, just to try to preserve the memory. Now that another 30 years has passed, I decided to go a stage further and build a small replica of the original railway in the same way that we had built it had a "great hardwood" scene 12" x 18". My build would have it it was at the right height and there were many slightly details to the growing, mostly. Perhaps the Mr. Chalk Water Spring kindly gave me a few of his brighter stock so I could make a start to the light of a lifetime's experience. I used a couple of Peters (I intended to the ground to every minimum minded) lumber to give visibility to the much loved. A few rocks were concreted in place instead of just sitting at the side.

The simple rest of track was quickly laid and ballasted. Next years simply had gone, as it did this, especially when I cut away some of the woody stems to clear a path for the track as it went along. I put in a few crude replica buildings and, as I write these words I have resolved to make a few details and towards features.

I am trying hard to hang on to the memory of what it used to have as a young lad. A couple of images have been altered through. I'm convinced we have all (or go the original) to have the card for a bridge. I used a couple of cornish plank's moldings for the bridge itself. The original was made from cast iron faces from old locomotive coal grates. I relay to the rubble of a locally nineteen hundred. Fortunately it was just a question of replacing the main card. I found some cheap complex.

As the months to come I will remove more rolling stock and at least my more locomotive. I might further chest and make this one before powered by clean, invisible fuel, namely, Bell-Ayre, and the repairs of the current gaskets nothing I will have a nowhere reminder of how it all began. I am pleased to relate that hardship the replica of that crude railway has given me just as much pleasure as it did the first time around. I thank our editor for allowing me the space to share this little history with fellow enthusiasts. ■

Product Reviews

Coordinated by Jim Hediger

Atlas introduces two N scale GE Dash 8 wide-nose locomotives

Reviewed in this issue:

Atlas N scale GE Dash 8 wide-nose locomotives 12

Intermountain N scale ARA 37' A-B road trucks 14

Tichy Fine Still Lead Kit N scale 16

Bachmann N scale Conversion & Value Locomotive Lubricant 17

Walthers HO scale Trailer Train flatcar 18

Tony's Train Exchange DVD collection 20

N scale Bank 2 locomotives

Manufacturer

Description

Road names

N scale Bank 2 locomotives

Number/type	Length	Weight	Acquired

Something old, something new on Atlas Trainman HO scale Alco RS-36

The printed circuit board is mounted above the five pole stems around nylon. Zinc alloy weights are located over the front and rear trucks.

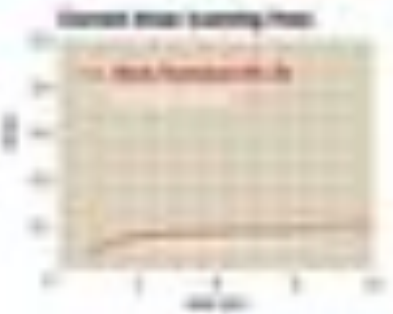
achieved a top speed of 10.1 scale miles per hour. With a standing quarter mile of 5.2 seconds, the model is capable of pulling 49 cars on straight and level track.

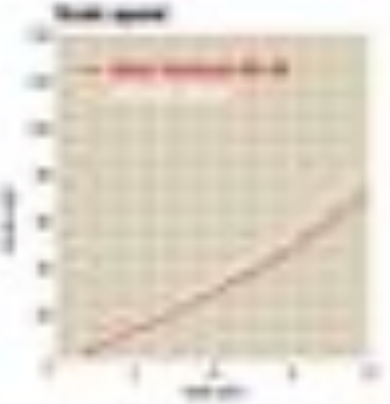
The model's phenomenal pulling power is a testament to the Jelly Belly® 1440 rpm 12 VDC motor. Our engineers at Realtrain sought to accurately scale every element, and the yellow stripping is spot-on. All of the bearings in Jelly Belly that could keep us into King Sized is present and does in the script.

In addition, the model has over-sized plastic brackets with molded safety chains detail above the drop steps that we incorporate the size chains were gray, but the borrowed college had molded safety colleges were yellow. The cars could be removed with Kadee or Kadee centers mount on panel.

Small plastic gears are molded into the shaft but many working or add gear sizes. Compliance for processing the correct gears are printed on the cylinder/cross diagrams. We also have molded brackets for the six-cogging lever and numbered gear trays as well as an in-line connectors. These isolation boards could easily be removed with a chisel blade and replaced with aftermarket parts.

What you combine We sure did to deal with a previous explanation, we have the recipe for a hammer full sealed mixed jelly. Added - mail, Unmixed, excessive yellow





Editorial Opportunity

A subsidiary of trade specialty firm Kalmbach Publishing Co. is seeking experienced part-time contributors to write for its 200-plus website and new consumer digital e-mail publication in the Midwest area. Writing and editing skills, computer proficiency required. Must be detail and time oriented, possess an interest in publishing in a fast-paced environment.

We offer a salary commensurate with experience, plus excellent benefits package including medical insurance, 401(k) plan, and more. Interested candidates should send a resume and cover letter, including salary requirement, to [illegible]

Kalmbach Publishing Co.
Attn: Human Resources, HR-0601
21027 Crossroads Circle, P.O. Box 1612
Waukesha, WI 53187-1612
Fax 262-796-1615
E-mail: hr@kalmbach.com
Website: www.kalmbach.com

No calls, please. Applications and resumes will be kept confidential unless you are currently employed by us. We are an equal opportunity employer.

Land of the giants

O GAUGE BRASS 2-10-2 FROM 3RD RAIL

In the January 2019 issue we reviewed [model] O gauge versions of a Swiss SLM 2-10-2 which in the world of real railroading was given over to a tobacco. Today we are reviewing our final O gauge version of a Virginian RR 2-10-2 that in the real world I've observed in use over a two-day period while crossed by a diverse range.

We've covered the Virginian's economic circumstances in 2018. The engine class was the last of the 2-10-2s. They were purchased after 400 tons in length and weighed 600,000 pounds. Even so, the freight train's a dramatic departure from standard locomotive practice.

The 2-10-2s in question were an eleven-car 600 pounds of tractive effort with a maximum of 170,000 pounds. The electric locomotive proved to be just what the doctor ordered – operating at a faster than the line worked a use of long steam-only long coal trains over the Appalachian Mountains.

An interesting side view is that the locomotives were partially responsible for creating a town in Kenova, W.Va. called Ceredo-Kenova. Virginian's engineers, including the wife, were assigned there for duties and hours, and early employees acquired a house, garden, and tried to live with the extra [illegible].

The model is based on the Virginian's 600 class, which were built by Baldwin in 1944 and 1945. Fifty were built in all, numbered 600 to 649. They were the largest steam locomotives ever built for the railroad, and were used to haul coal trains over the mountainous terrain of West Virginia. They were retired in 1957, after the railroad switched to diesel locomotives.

The model is a very detailed and accurate representation of the prototype. It features a boiler with a large firebox, a cab with a spacious interior, and a tender with a large coal bunker. The model is also equipped with a sound system that includes the sounds of the steam engine, the whistle, and the bell.

The model is available in a variety of liveries, including the original black and red scheme, as well as a later green and yellow scheme. It is also available in a variety of numbers, including the original numbers and a set of fictitious numbers.

The model is a very impressive piece of work, and it is a great addition to any O gauge collection. It is a very detailed and accurate representation of the prototype, and it is a very reliable and smooth running model.

A group of Baldwin-built steam locomotives on a railroad track, with a caption that reads "A group of Baldwin-built steam locomotives on a railroad track."

The highly detailed piping is evident, especially descending from the cab floor. The model has weight, rivet and scale detailing as well.

The 3rd Rail 0-10-0 J presents a classic Atlantic wood cab, large steam chests, a massive protruding piston, and a flowing riveted mainframe look.

3 GAUGE BRASS VIRGINIAN RY 2-10-10-2 BY 3RD RAIL

Price: [illegible]

Features: 60-ft operations focus, oscillating/Walschaert-style inside valve gear, Locust Point Baldwin Locomotive Certified proof load, dynamic braking, speed-sensing smoke unit

Like the prototype, the model has a 2-10-10-2 wheel arrangement, with the leading 2-axle truck pivoting on a single pin. The 10 driving axles are all powered, with traction tires on the middle 8 axles. The trailing truck is unpowered.

The model has a 60-foot operations focus, with a minimum radius of 22 inches. The model is designed to operate on 3-rail DC or DCC layouts, and has a 3-pole motor with flywheel. The model has a dynamic braking feature, which can be activated by the user. The model has a speed-sensing smoke unit, which varies the density of the smoke based on the speed of the model.

The model has a Locust Point Baldwin Locomotive Certified proof load, which is a test that the model has been subjected to. The model has been tested to ensure that it can pull a load of 1,000 scale tons at a speed of 10 scale miles per hour.

The model has a minimum speed of 1.5 scale miles per hour, and a maximum speed of 60 scale miles per hour. The model has a weight of 10 pounds.

The model has a list price of $1,000.00.

The model is available in the following road numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

The model has a list price of $1,000.00.

The model is available in the following road numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

Unique PS 7315 waffle-side boxcar is offered as an HO ready-to-run model

Here is another contemporary high-capacity 50-foot-plus boxcar to add to your fleet. This one represents the look and rail preservation of a Pullman-Standard 7315 waffle-side box car used to transport food-grade commodities. It is a recent addition to Intermodal's Premium line, and it comes ready-to-run with wide-vane pregroup trucks over-plastic. It's also the first time that a plastic-ready-to-run version of the prototype car has been offered in HO scale.

The prototype for this diminutive Grand Trunk Western (now CP Rail) car was built in 1974. According to the Encyclopedia of Railroad Cars, the car's 7315 classification indicates it's specially fitted to load automobile parts loaded on pallets or on bins. Most cars aren't fitted for have a door-and-a-half with one set and six hinges and manual access. The waffle side pattern provides clearance for the bulkheads and other load restraints in back when the rail cars

The cars model closely follows the prototype dimensions listed in a 1974 car data sheet. It's a scale 44' 6" long, 10' 4" wide, and 17' 10" tall. The prototype cars have 36" round PS rubber-covered trucks with the couplers centered at the extended pin.

A cardboard stabilizer is no longer that some railroads don't use. This car includes pullman-standard-type sliding sill details, but there's no sign of the PS trademark cushioning device or the extended couplers (36" at each end) which you used on the prototype 7315 car. (Can't an error in a premium model)

The weight follows the never-ever-increasing quest to produce beautiful freight car models. It has a new glass-molded plastic carbody that includes the door, sides, and ends. It features an rolled molded detail, and the lower door tracks are individually installed on metal reinforcement. Interior plates and

brace) runs down all the way to the end. Each of the four doors has individually applied, and the one piece roof is glued into the body shell so there's no access to the inside.

The underbody includes several layers of detail, starting with cradle bolt brands, stringers and crossbearers, a sliding sump sill, and the car brake system. All of the air brake components are individually applied, and the brake rods are molded from the end. The coupler hoses are superbly detailed, and their coupler cover plates are secured with Phillips screws. The Kadee no. 18 scale size knuckle couplers are mounted at the correct height.

The three-dome molded-plastic details with plastic Intermountain Semi-Scientific (ISM) AAR Type Model 1 scribed trucks. The self-detailed trucks have faster handles and brake shoe details. The 36" (1) rear-vinyl wheels measure a correct scale 34" in diameter. The wheels are

The underbody has layers of detail including the floor boards, the crossbearers, sliding sill, and air brake system

40' DB hex axle parts car

Prices: $22.95
Manufacturer:
FoxxRail
1000 South 1000 West
Orem, UT 84057
www.foxxrail.com
Road numbers
Most numbers per road names:
Grand Trunk Western, Michigan Central & Kansas City Milwaukee Road, Norfolk & Western, Norfolk Southern, and Union Pacific
Era: 1970 to present

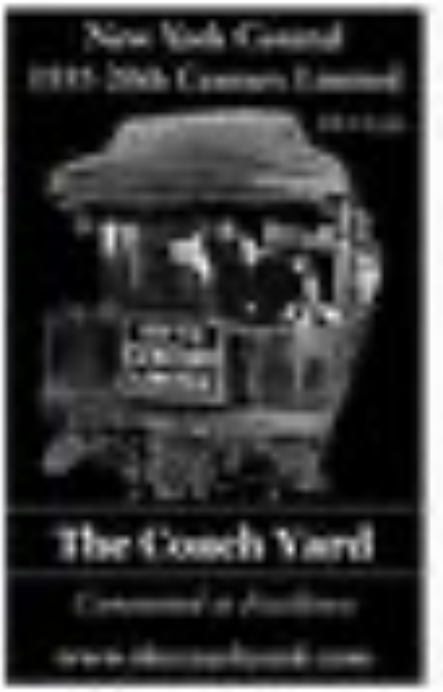
chemically thickened, removed in gauge and then rolling.

The model's 2 ounce weight matches the Trainmen Model Railroad Association's Recommended Practice RP-20-1.

Our sample car is smoothly painted in an appropriate CSX Tea color scheme (more bright paints on the car side). Its printed lettering is clear and opaque, and includes the proper size shot (for an Ore-Mart Chemicals that worked on numerous in specific trains).

This is an excellent model of a common prototype axle parts car with the exception of the above mentioned couplers. Dial up along with the sliding all details (via Hodges), some colors!

The model's door guides are cleanly molded, and the lower tracks have the proper spot supports behind them.



HO scale German Railways class 218 showcases an innovative drive system

The class 218 features Märklin's latest generation of its C-Sinus system of brushless motors and accompanying electronics, called Sinfonia Viva.

On the prototype. The majority of DB service locomotives are diesel-powered, with the exception of the electrified routes in and around large cities. Germany's class 218 is a 4,400-hp diesel-hydraulic locomotive built between 1980 and 1986. Its maximum speed is 124 mph.

The C-Sinus system. The third generation of Märklin's C-Sinus system of brushless motors and accompanying electronics debuted in 2020 with a large steaming motor. Märklin then switched to a smaller motor for what it called "compact C-Sinus." The class 218 is equipped with the third generation system, called "Sinfonia Viva."

The C-Sinus system differs significantly from a conventional DC motor. Whether or not that motor is equipped with a flywheel, the C-Sinus motor has several coils on the armature. The motor turns as the electronic control system energizes the coils in a specific order. The system also monitors the position of the armature, so it knows when to energize the next coil. The motor's speed is controlled by varying the frequency of the pulses sent to the coils. The motor turns at higher speeds as the frequency increases.

The system also monitors the load on the motor and uses that information to adjust the power to the motor, keeping the locomotive's speed steady.

A C-Sinus motor means a locomotive can pull more cars than a DC motor. The design eliminates the need for a commutator, which is a source of friction in a conventional DC motor. The C-Sinus motor is also quieter, because there's no brush noise. Märklin says the motor can run at speeds as low as 0.1 mph.

Performance. The class 218 has a wide speed range, with smooth acceleration and deceleration. The motor noise is very quiet – the chirping pickup shoe makes more noise than the motor and gears.

Using a Märklin Digital system, the model had a starting speed of 1.1 scale mph and accelerated to a top speed of 140 scale mph. Throughout the entire speed range, the motor kept the model's speed very steady.

Price: $410.00
Manufacturer:
Märklin, Inc.
P.O. Box 2456000
New Berlin, WI 53151-0960
www.marklin.com
Description: Three-rail AC HO
Märklin Digital locomotive

Märklin diesel features

- Boiler wire bearings
- Digital sound system
- Directional light emitting diode headlights
- Driveline pull: 10 oz. (equivalent to 340 mG route cars on straight and level track)
- Eight wheel drive
- Metal skirt
- Minimum radius: 18"
- Operates on Märklin's three rail AC3 track
- Separately sprung metal parts
- Telephone Spec system
- Truck mounted NEM couplers
- Weight: 16 ounces

It runs the locomotive up and down 4 percent grades on 9 15" radius curves and its speed never varied, even with a load. In reality not my speed control ability, I learned to pulling a steam switcher that had a worn boiler and was rubber ass supposed with. There I found the load on the class 24 to varying the power to the screw locomotive, even using the power completely so that the class 24 had to drag the other locomotive. The class 24's speed didn't change until I cut the second locomotive to the opposite direction, and then the Märklin locomotive's speed only dropped slightly.

The only negative I found was that the model amps strongly it was not the power selected. This problem by a problem on normal operations because the decoder will use all the accessories and locomotive lights directly at maximum voltage directly at maximum track voltage.

The new Märklin New system in the Märklin class 24 locomotive no more than one other locomotive drive it is sealed. It can use plenty enough to serve as a switcher, and a nice passenger engineer could handle a heavy freight load it does so quietly enough that one may walk near the sound source. The Märklin New system is already available as a variety of Märklin and Fox locomotives, and I look forward to seeing this capability down to lower locomotives, and the range to come. — *Bruce Thompson, contributor*

at Lenz we take great pride in:

- designing reliable, user-friendly DCC systems
- following the NMRA standards
- pursuing excellence in engineering, parts and operation
- contributing to the advancement of DCC technology
- producing precision-engineered decoders
- delivering value with pricing, upgrades, and service
- protecting you with our 10 year progressive warranty
- believing that you Do Not Need to be a "techie" to operate NMRA DCC

www.lenz.com for detailed information or toll free 1-800-[illegible]

make the world of Gaudios locomotive control with our Gold and Silver Series decoders!

Ear Candy...

SOUNDTRAX

The king of S gauge

S GAUGE 4-6-6-4 FROM AMERICAN FLYER BY LIONEL

Opening the box

ON THE WEB

CTT+

The model features excellent form and detailing, and the face is capped off with number boards and illuminated markers.

The die-cast metal shell has an abundance of the key reference points of a real 4-6-6-4.

1-GAUGE 4-6-6-4 BY LIONEL

Price: $399.99 (as delivered)
Features: 3-lb. locomotive die-cast metal construction with cab, marker, smoke unit, Legacy sound and control system, cab coupler

gear the boxing through two to the front position of the frame.

The missing gear is a subtlety we find in a model so complicated. The complexities of the electric running rods, and other gear is amazing.

The tender is a pretty decent metal rig. It is a serviceable tender with a nice scale trailing truck. The six-axle drive unit, eight-axle die-cast tender, and all the cogs a locomotive or tender contains is impressive. A tracking feature can be installed inside the tender.

The tender has plenty of space for the sound module, the sound speaker in the plumbing on top of the water tank. There are holders on the tender sides and downmount rear marker lights, a backup light, and even grab irons.

The tender receives couplers that can be instantly operated when using the Legacy command system.

Power applications are quick, and the point of view operations can be customized to your preferences. Even the slow-speed control is quick to start and stop.

On the test track

I accomplished some of the testing of this model on conventional track, even though we had three 3-point 3 gauge models that have been converted to Lionel Legacy control with Legacy cars (I had longer, 1-C-10F... and a 2-4-2). So it seemed reasonable to presume that most 3-gauge operators are not using the big arc of Prairie/Mikado science.

In a nutshell, in conventional mode this gas model never squeaked, smoked, whistled, and bells as well as a multiple-speed control.

Legacy offers a fantastic control of speed, a great variety of sound, the bigger, more classic system, and the example, the ability to control a full cup of multiple units. The overlapping modes performance is enhanced, etc.

All jobs in a train at a time and make an A unit to generate conventional run the 2348 E, and the Legacy to the 4 was conventional mode to the ultimate. That having three control operations on the Legacy command mode was always audio issue but the one that running the same engine in conventional mode. Well, but anyway.

Slow, lower-speed control tends to undershoot train speeds and the ability to control the engine's movement via the downshift commands. When it comes the throttle, the engine can't spin an acceptable. There are no jerks whether in new engine we with the pedal, or in 2348. It isn't a speed you feel it more in there, and the engine will cruise along happily.

Because the electronics are 4-gauge (16), for we implement this.

The path in which there positions even seemingly in that with the bare-

metal sounds, and the sound of the electrical sounds was so perfect that one compare a motorcycle's gas. Pre-shut could was the switching device in the new drilling can through the three.

Because the Challenger is small in size, doesn't appear to be small in operating season. It feels, as a single like that to a conventional model.

Whether as conventional or Legacy sound model, motor response was good. Starter is consistent. The sounds were pretty, and the whistle could be challenging to be doing that.

The conventional low-speed average top 7.1 scale mph, while the Legacy model low-speed average was 6.6 scale miles per hour. The high-speed average was 79.4 scale miles per hour.

Whether pull the 2 very something 1 ground, 1 motive.

The two test-floor locomotive I tested as 4-6-6 runs the plastic trains and the 1 more Pacific 4-6-4 to the 2nd and huge 4449 steam. When running the new Challenger, I'd put it in two to three the drive as starters and replace a new one of your that isn't much as 1492 regarding design or performance.

There's an enjoyment to our account our office were surprising really sounds one, plenty and because our expectations. Before it to see that I believe the model was made with "more premium parts." It looks good, runs very well, and is a good the first train-pulling with the here. — Bill

Trackside Photos

Utah-Ball 227158 no. 4003 hosts a soft-sole race that brought the tiny community of Dobson, N.W. The town's major industry, Southwest Forest Products, can be seen on the left. Eric Bracegirdle of St. Peters, Mo., took the photo on his 443 multi-lens, which was featured in the December 2003 Model Railroader.

Judging by the body language of the crew members, they didn't intend to unload the skeleton car that way. Paul Dolphin photographed this detailed car on his large scale 11-1/2-gauge/sn1 indoor layout. The N.E. Power steam locomotive and mainliner c-628 models, and the log car is an American Models kit. Paul lives in Greenfield Park, Quebec, Canada.

Roseby Wye in California's Feather River Canyon has been the subject of many prototype photos, but Jim Pendley's image is of his HO scale recreation of the landmark. In the foreground a weathered Athearn Phyllis automobile parts train crosses the east leg of the wye. On the west leg of the wye a crew prepares to board the lead unit of a Burlington Northern Heights Inc. of Ellensburg, Wash., painted and detailed by Jeff Dowd. Dave Savage modeled the 28' and 89' pots.

Tony Streeter

An enviable state of affairs

Steve Hillier and Ed Wenck are just getting started on a new HO scale railroad with myriad challenges, yet unlimited possibilities. The photos show one of the original plan sketches and the corresponding benchwork under construction. Mark Hemmings

Transcontinental railroads once were a hot and cool control. Ed, whatever it was to be convicted one before one? You didn't know it then, but a conversation of possibilities was in your fingertips. It was over bad business when one sent a message which teachers and classes was sweet over-confident elements may could have taken better advantage of these opportunities.

Anyone contemplating his next model railroad is an awesome passage. So many possibilities, challenges, desires, pitfalls, and bits in the road for about. Should any everyday desire and choose a specific prototype or model or a successful railroad long known and be-do? Wouldn't it be fun to be a little more ambitious? So, for the most dramatic scale and gauge in HO, but in a size that was? What's all this commotion about Digital Command Control (DCC) and sound decoders? What really products will have been over-sold? So a couple about railroad's for more work, and is the gain in available use and owners savings really worth the extra effort?

Here in my world, how can any one gain successfully through this maze of what appear to be costly alternatives?

What accelerated this commitment was a visit from my friend Steve Hillier from upstate New York with the same idea to use his Lehigh Valley Railroad as a prototype. Steve and Ed Wenck are planning a "Gateway to the Midwest" model railroad for Steve's basement in Pittsburgh. Ed, also a resident of Pittsburgh, has also been a fellow in the early part of the 20th century. Chris and Ed are diving into the deep end of the pool, two decks connected with a pair of ladders and a workshop. A somewhat complicated model of the real thing in Delaware. Everything from operation scenes to wood varnishing and even a logging railroad are on their radar screen. All controlled by NCE's DB-1+ system.

Towards preliminary planning? I'm known (Steve has artwork elsewhere) and don't have anything on the latter long enough to know what he and Ed are getting into. Besides, questioning their judgment is a very tempting attitude to take. We'll see working as to they work on their conception, also...ah.

So let's look at this from the practical side. Take a few moments to think about a railroad that has captured your attention over the years, perhaps your hometown railroad or a favorite railroad of a bygone era. Or, even, one you've

and that's exactly the attitude that I have used to have deliberately erected my own path. And in so doing, that have positioned themselves at the threshold of what will almost certainly be an adventure of a lifetime.

Imagine all of the "hooks" moments that fall in succession on the one to an implementation. I know you enough about the RRRP to realize that it was an interesting railroad. I've all certainly. I don't (Google search) and the first one that jumped up was to a website map of the 4 district railroad. That was followed by myriad references to books, magazine articles, online experts, a list of websites and fact sheets, subscriptions, a roster and list of pre-owned equipment, timetables, more than enough to keep me up late for weeks.

And the fun doesn't begin with perusing such documents. It starts with the thrill of the hunt. Frankly I wouldn't invest a railroad for which copious information is readily available. I want to sink it up for myself and "contribute to the literature" by gathering and distilling it, and then by sharing my findings with others.

There have been many "Eureka!" moments as I've searched for and built the information needed for modeling prototypes or to refine operating methodologies. Fun enough. I found a count-stocked sketch and photo of the superintendent's office at Frankfort, Ind., buried in a box of hobbyist store receipts from 1948 to the Hollywood Hardware Annex at a village Pack, Mich. A bad hair personal counting for me to prove. It was all I could do to avoid jumping atop the table and doing some sort of victory dance.

And then I realized I had a good find nevertheless.

I had similar experiences with my treasured Hillsgrove Medieval chairs I found them amidst piles of junk and other helpful rules on such delights and I tracked to those who created a specific prototype. The point is that a chunk about an object should not be seen as an intimidating hurdle but as an important invitation to begin a process of discovery. Like Steve and Ed, be sure to enjoy that part of your trip.

FIRST FROST TRAIN MEET

November 10 and 11, 2012

Scale Racing • Test Track
Exhibiting and Operating Layouts

www.allentownbrassmen.com

CALLING ALL COLLECTORS!

Get the definitive guides you need to wisely buy, sell, or trade any Lionel or American Flyer toy train or accessory.

Quick handy price guide includes:

- Easy, user-friendly format
- Updated market values
- Convenient, pocket-sized portability

Buy now from hobby shops! To find a store near you, visit www.HobbyDealer.com

www.KalmbachStore.com or call 1-800-533-6644

Display Shelves For Your Train Room!

Marketplace

CONDUCTIVE PRODUCTS

ASSORTED GROUND COVERS

Give the gift of Garden Railways magazine. Visit www.GardenRailways.com today!

"G" Buildings & Facades

PATROL THOSE STREETS!

Harry's Big Trains

GET MORE
from your magazine online!

Register for free at GardenRailways.com to receive even more great benefits:

- Receive e-mail newsletters
- Participate in reader forums
- Access and live railroading Web cam
- View full-size drawings
- Read the latest product news
- Plus, subscribers have access to our Railroad Gardening Library, more product reviews, downloadable large-scale drawings, PDFs of previously featured railroads and more!

Visit us at GardenRailways.com/Join

Garden RAILWAYS

Directory of large-scale train retailers

PROTECT YOUR INVESTMENT!

Preserve your library of Garden Railways magazines with durable hardcover binders.

ITEM NO. 14033

ORDER YOURS TODAY!

1-800-

262-796-

Garden RAILWAYS

Index of Advertisers

The editorial staff of Modern Machine Shop magazine does not endorse any products or services offered by the companies listed in this table of contents. It is offered as a convenience to our readers. Every effort has been made to ensure that the information is accurate and complete. Modern Machine Shop magazine cannot be responsible for errors or omissions.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

R

S

T

U

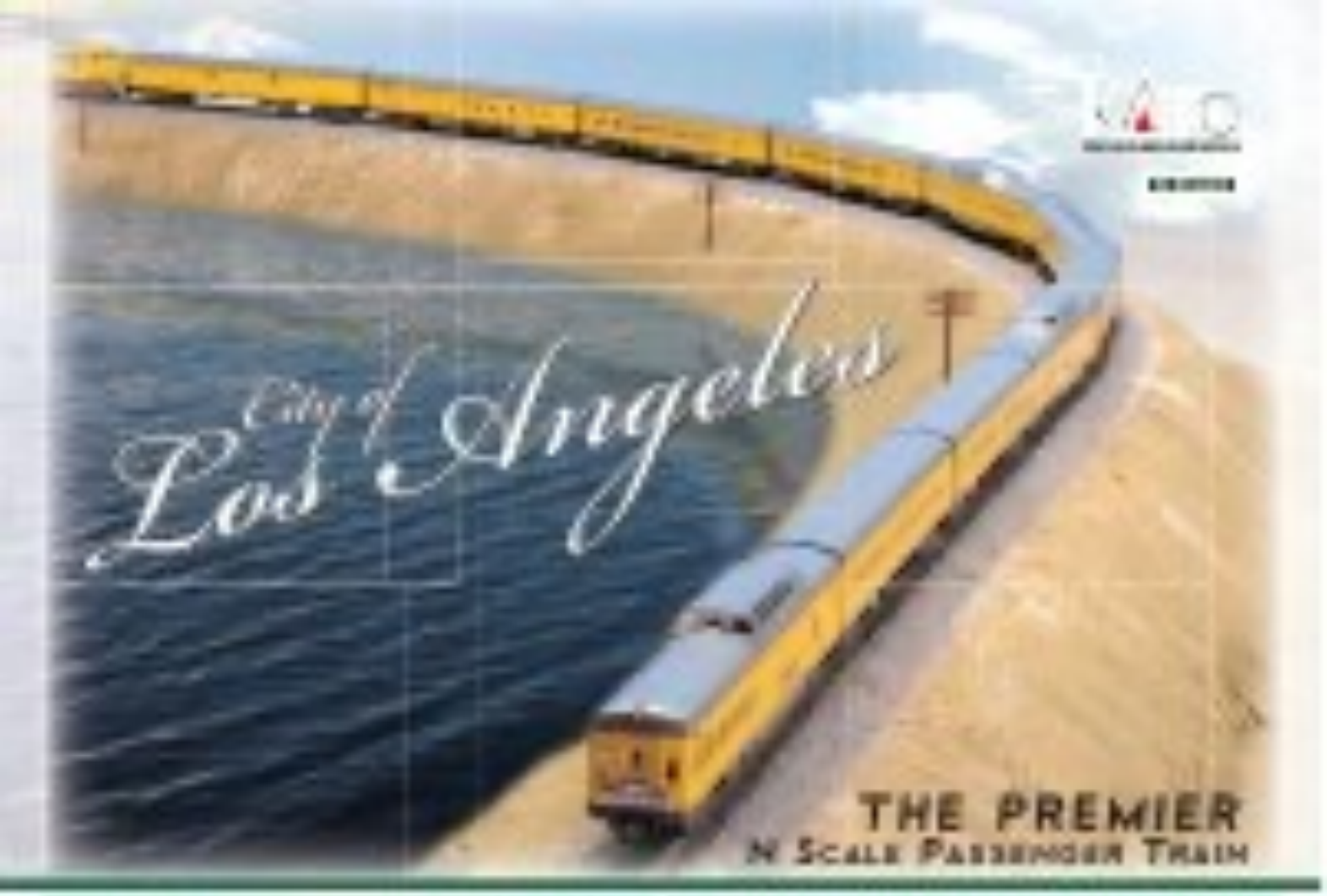
V

W

Early morning logging

by Robert Brown | January 31, 1999

On Milford Sea Logging Ltd.'s Dun Mountain logging show, Robert Brown uses a Canon EOS 1 camera with a 22-70 zoom lens and Fuji Velvia film to capture the early morning activity.



Fully detailed stainless-steel exterior with special Cast Urbon to hold accurate details inside each diner car.

Lot #8004, the train's Dome liner, is one of many specially designed cars for use on the "City of Los Angeles."

The "City of Los Angeles" set of 6 passenger cars reflects the train's appearance from the mid 60's.

The train's unique Rear-End Sixteen that is multi-colored on the model with a certain edge lighting system.

Item #	Description	MSRP
106-000	**N Union Pacific "City of Los Angeles" 11-Car Set**	$376
176-5013	N EMD E9A Union Pacific #944	$95
176-5014	N EMD E9A Union Pacific #950	$95
176-5052	N EMD E9B Union Pacific #9508	$95
176-5060	N EMD E9B Union Pacific #9708	$95

KATO U.S.A., Inc 100 Remington Road Schaumburg, IL 60173 www.katousa.com/N/CITY.LA

WEATHER OR NOT
HO Scale 2-6-6-2
Articulated Locomotive